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ON THE HISTORY OF THE DECLINE AND FINAL EXTINCTION

OF

LEPROSY AS AN ENDEMIC DISEASE IN THE BRITISH ISLANDS.

BY

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PREFATORY NOTE.

This paper is the result of a careful investigation into the history of leprosy in the British Islands. As a matter of convenience chronological order has been followed, as far as possible, and a large number of isolated events, instead of being incorporated in the text, have been placed on separate sheets, and bound as a list of dates to accompany the paper. A list of leper-houses with the authorities for their existence has also been appended.

It has been found that a considerable quantity of historical matter could not be included from its diffuseness and from its lack of authenticity. The dates have been revised and the most commonly accepted figures in all cases adopted.

I am much indebted to various works on Leprosy and kindred diseases, particularly to that of Dr. Charles Creighton on 'Epidemics in Britain,' and to Sir James Young Simpson's classical papers in the 'Edinburgh Medical Journal' of 1841. It has not been my desire to incorporate all the information on the subject that could be found, but rather to make what was well known the basis of operations, adding that which was less widely known. I am also much obliged to Professor J. E. Lloyd of Bangor, for his notes on Leprosy in Wales.

GEORGE NEWMAN.

20, Queen Square, London, W.C.;
August, 1895.

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HISTORICAL NOTES.

I PROPOSE at the outset to give in some detail the progressive history of leprosy in the British Islands from the earliest times to the present day.

In order to obtain a more or less chronological order, I shall frequently make use of the different histories of leper institutions. In adopting this plan it is not wished to exaggerate or unduly emphasize the place these institutions held with regard to leprosy in England, as will be hereafter pointed out; but simply and solely as a scaffolding by which the more easily to build the united history of the disease. So large a part of such a survey would be isolated facts and dates, that I have drawn up these separately in chronological order, and they are printed on the accompanying separate sheets.

There can, I think, be no doubt that many and various diseases were included in the comprehensive term "leprosy." As far as possible I shall endeavour to eliminate all diseases not true leprosy or Elephantiasis Græcorum.

All authorities, both ancient and modern, seem quite decided that true leprosy was at one time endemic in these islands. Of that I also think there can be now no possible doubt.

The earliest date that we have any knowledge of leprosy being "brought to England" was in the year 60 B.C.[1] It existed in Egypt in the reign of Husapti at least three thousand years before Christ, it was common in India and China four hundred years before Christ, and was known in Spain, Italy, and England about sixty or more years before

[1] Parton, 'Hist. of St. Giles.'

Christ. These are only approximate dates: it probably occurred much earlier. 600 A.D. witnessed an increase in leprosy in the British Islands,[1] and about the same date it is recorded of the Glasgow saint, Kentigern, that *mundabat leprosos*. Sir James Simpson[2] states that the Blythe Leper Hospital at Nottingham was established in 625 A.D., other authorities think it was 638, and the majority believe the first English leper-house did not exist until the eleventh century. It is, however, almost certain that leper-houses existed in Ireland as early as 869, and leprosy was certainly prevalent at the beginning of the tenth century. Hywel Dda (a Welsh king and famous law giver, who died about 950) enacted several laws relative to leprosy.[3] "That a married female was entitled to separation and the restitution of her goods and property provided her husband was affected with leprosy" (Celtic General Repository, vol. iii, p. 199). It was about this time that a law was instituted in England causing leprosy to be a valid cause for divorce.

It was in the eleventh century that the first "hospitals" and pest houses were built; but we must not necessarily assume that the existence and building of leper houses and like institutions implied a new or even an increasing disease. The leper-house period—roughly from the eleventh to the fourteenth centuries inclusive—may have been due to the awakening of humanitarian ideas, or to some rough medical or ecclesiastical intention of thereby preventing the spread of the disease. In all probability leprosy was at its zenith not later than the twelfth century, even though many leper-houses date after that. Whether that be the exact period of its zenith, it seems quite clear that leprosy was a pre-Norman disease in the British Islands.

Some have said the returning Crusaders "brought" leprosy back to England. This, now, is surely a discarded view.

[1] Parton, loc. cit.; Nichols, 'Leicestershire;' Lanigan, 'Eccles. Hist. of Ireland,' vol. iii, pp. 83—88.

[2] 'Archæological Essays,' vol. ii.

[3] Professor J. E. Lloyd, of Bangor, writes: "The laws now included in the codes attributed to Hywel Dda are quite certainly not *all* due to him. The one enactment, which I feel with some confidence may go back to his time, is that making leprosy a legitimate ground of divorce."

The first return of any Crusaders cannot have been before 1098, for they only left in 1095; yet there were at least three famous leper-houses before that date—Canterbury, Northampton, and Chatham,—and Hugh, Bishop of London, and other noteworthy people of the time, had died of leprosy. (Besides earlier records of the disease, for which see the chronology in the Appendix.)

From the establishment of the leper house at Canterbury, before 1089, up till the end of the fifteenth century, British history has many like establishments to record.[1]

The disease was present in Scotland from the time of Stephen till the commencement of the seventeenth century, and in Ireland from the fifth to the eighteenth.

With these preliminary remarks I will take some of the chief leper-houses, and outline something of their history.

The first of which we have much record is Canterbury. Somner[2] states that leprosy became "a national malady, and accordingly in all parts provision was made for the receipt and relief of the infected persons." "There are," he says, "three houses at Canterbury—St. James's, St. Laurence's, and Herbal." Other historians give St. James's, St. Nicholas', and St. Laurence's, and others only two. There can be no doubt that Lanfranc, then Archbishop of Canterbury, founded a hospital here before 1089,[3] and it is recorded that previously to this Becket performed miracles, giving health to the leprous.[4] Northampton[5] and Chatham[6] were established very shortly thereafter, both in the eleventh century and probably both in the reign of William II. The latter was founded in 1078, on the south side of what is now the High Street, by the celebrated Bishop Gundulph, for the reception of lepers of both sexes. The endowments were small, and though they were afterwards augmented by different benefactors, the proceeds were seldom sufficient to support the inmates, who were hence accustomed to be supplied

[1] See the accompanying list of leper-houses, dates, &c.
[2] Somner, 'Antiquities of Canterbury,' p. 80.
[3] Simpson, loc. cit.; Somner, 'Antiquities of Canterbury.'
[4] Matthew Paris.
[5] Brigges, 'History of Northampton.'
[6] Tanner, 'Notitia Monastica,' 1744, p. 211.

with provisions from the Priory at Rochester. These lepers seem to have lived a corporate life, and were possessed of a common seal. A chapel was built for them in the reign of Henry I. (1100-1135), St. Bartholomew's, which was increased by Henry III, Edward I, and Edward III, and underwent various royal additions up till Edward IV.

Remegius, Bishop of London, was the first builder of the house at Lincoln. It was primarily intended for ten lepers, who were to be outcasts and slaves (*villani, servi*) of Lincoln. In the space of two hundred years from its foundation the character of its inmates had changed, for Edward III's commissioners found nine poor brethren and sisters in it, only one of whom was a leper. In 1457 it was, by order of Henry VI, annexed to the large and famous leper-house at Burton, in order, as it was stated in the charter, "for the better maintenance of three of the king's servants that should happen to be lepers, either at Lincoln or in the hospital of St. Giles, near London."[1] Provision was also made for the possibility of other lepers requiring its shelter. One hundred and fifty years after the establishment of the Holy Innocents, Lincoln had another leper-house (1280).[2] "The place where the leper-house stood," says Cookson,[3] "is now called the Malandry Closes, and stands on the Lincoln and Sleaford turnpike just outside Little Bargate, the ancient south entrance to the city. 'Malandry' is a corruption of *maladerie*."

York and London had hospitals almost simultaneously with the first foundation at Lincoln.

There was near the city of York a lepers' hospital during the time of Maud the empress (daughter of Henry I.; married emperor of Germany, and disputed Stephen's right to the throne in England). Maud was the benefactress, and it was probably the same as that afterwards known as St. Nicholas outside Walmgate Bar, which was of royal foundation. It consisted of officers and several male and female lepers, and at the Dissolution (1536-40) had rents and lands of the yearly value of nearly £30.[4] It is not improbable that a number of

[1] 'Monasticon Anglicanum,' Sir William Dugdale, p. 627.
[2] Tanner, 'Notitia Monastica,' ed. by Nasmith, 1787.
[3] Lincoln Topographical Soc., 1841.
[4] Tanner, loc. cit.; Dugdale, loc. cit.

hospitals existed at York ; although Tanner cites one for lepers, we have authority for believing that previously to 1365 there were *four* hospitals especially set apart for lepers,[1] and in a number of York wills in various years up till 1454, four leper hospitals are mentioned.[2]

Of the leper-houses in London, St. Giles',[3] situated in fields to the north-west, was the largest and best known.[4] This arose from the munificence of Matilda (daughter of Malcolm, king of Scotland), queen of Henry I. Matilda's charter ordained *forty* lepers and three officers, to which were added afterwards, when revenues increased, various other officers. The original endowment was £3. Some think this amount very small (Maitland), but it must be remembered that the inmates were allowed to beg and accept alms. As at the markets of Chester, Shrewsbury, and elsewhere, they did this systematically, using the advertising medium of a clap-dish.[5] In some localities this begging reached such a degree that Proctors[6] were appointed to go round to the churches and other assemblies of the public, to collect alms on behalf of the lepers. This, as might naturally be supposed, was after a time grossly abused, all sorts of idlers claiming to be Proctors for the collection of alms. Funds for the St. Giles' Hospital were augmented by royal grants of land in Middlesex and Holborn, etc., in addition to Henry II's liberality, which included 60*s.* from his private purse on every St. Michael's Feast Day. There was also 30*s.* 5*d.* "perpetual alms" to buy them lights. This generous charter seems to have no date affixed, but William de

[1] 'Testamenta Ebor.,' vol. i, p. 75 ; vol. ii, pp. 26, 55, and 93.

[2] Robertson, Appendix, 'Arch. Essays,' vol. ii.

[3] St. Giles, the patron of this and other hospitals in England and abroad, was an Athenian (nobility) by birth, and flourished at the end of the seventh century. He lived in great piety in a hermitage at the mouth of the Rhone, and afterwards in a forest near Nîmes. He was "fed by a tame hind," which various hunters tried to kill. He obtained the favour of the French king, and his abbey became a centre of the Benedictine monks. A considerable town was built about it, called "St. Giles," which played a no small part in the wars of the Albigenses.

[4] Parton, 'History of St. Giles.'

[5] Ducange, v, Scandelloe ; Izache, 'Exeter,' p. 11.

[6] Phillips, 'History of Shrewsbury.'

Mandeville, Earl of Essex, was one of the witnesses (therefore between 1166–1189). There was a still further increase of wealth in the time of Henry III. From Pope Alexander IV. the hospital received a confirmation of its estates and privileges, and it was also taken under the special protection of the Roman See. Thus John's interdict was disabled. The probable date of this fully confirmatory bull was during Henry III's reign. Edward I. granted the hospital two charters, the first in 1290, for the recovery of debts and certain rents, which it seemed impossible to get without; indeed, it was about this time that, owing to many dissensions and quarrellings, the influence and position of the hospital began to decline. It was so with many others in England. In his second charter Edward I. refers to these disorders, and after more or less radical changes, took the whole institution under his special charge, and appointed Geoffry de Birston, master. Edward II. issued two charters, the one relative to the carrying on of the convalescent home (or "middle court" as it was called), the other on the subject of the persisting abuses. For the first time also the charter refers to the necessity of no one being admitted who was not a leper (it appears that matters of diagnosis had become very slack), and that there should be no mixing of the healthy with the diseased. In the time of Edward III, by the king's command, St. Giles was annexed to Burton Lazars (in 1354, it is said Edward III. *sold* it for forty marks annually) owing to the continual abuses and disorders. In 1347, owing to Edward III's proclamation that all lepers do leave the city within fifteen days, *fourteen* lepers applied at and entered St. Giles' Hospital. This was at the time of the great plague, and it is possible that some of these fourteen were not true lepers. When the hospital was handed over to Burton Lazars the number of lepers therein was greatly reduced. It would seem that in 1392, Richard II. re-sold the benefaction to the Abbot of Tower Hill for 110 marks annually. Henry VIII, in 1539, dispossessed St. Giles, first keeping it and its revenue to himself for six years, and then bestowing it on one of his favourites, Lord Lisle, in 1545, together with the authority and funds of Burton Lazars. Lord Lisle fitted it up as a private residence and leased out

subordinate parts to tenants. The number of lepers in hospital at its dissolution must have been very small compared with what had been in the past. Parton[1] thinks the decrease was caused "from the reduction of the income for their maintenance and from the decrease of the disorder itself, which about that period (1539) was in many places beginning to disappear."

It will be noticeable from the accompanying list that the leper houses—not necessarily the leprosy, but probably—were more frequent in some parts of England than others. The western counties were comparatively free in comparison with the eastern, and of the latter Norfolk, with its capital Norwich, affords a striking example of the numerous lazarettos. Norwich itself boasted of six different hospitals. There is evidence to prove that Norwich was not a very healthy city, for during the plague of 1348-9 nearly "60,000 people died in that city alone" (much more likely 5,000; the whole population of Norfolk in 1349 cannot have been more than 10,000).[2] The following is the list recorded by Simpson[3] and Tanner:[4]

St. Mary Magdalene	.	founded before 1119.
St. Mary and St. Clement	,,	,, 1370.
St. Giles . . .	,,	,, 1249.
Without St. Magdalene's Gate	,,	,, 1370.
Without St. Bennet's Gate	date unknown.	
Without St. Stephen's Gate	,,	,,

The last of the pre-Stephen leper establishments was at Oxford.[5] About half a mile from Magdalene Bridge, and a little to the north of the road to Cowley, there stand some of the remains of the ancient hospital of St. Bartholomew, founded by Henry I. for lepers. Henry established it soon after the erection of his palace at Beaumont. He intended it for twelve men, and endowed it with £23 per annum from the fee-farm, anciently payable to the crown from the city of

[1] Parton, 'History of St. Giles.'
[2] Dugdale, 'Geographical Encyclopædia.'
[3] Loc. cit.
[4] 'Nostitia Monastica,' 1787.
[5] 'Rot. Chart. Turr.,' Lond., vol. i, p. 99.

Oxford. Several other contributions, lands, etc., were afterwards added, yet in the reign of Edward II. it was in such great poverty that the number of "leprous brethren" was necessarily reduced to six, in addition to whom were two "whole brethren." A new charter was obtained at this period. This institution, like so many of the others, was by no means free from internal disputes and quarrellings, only in the present instance they were between the corporation and colleges, especially Oriel. At the second foundation of the hospital, in the reign of Edward II, the sum of ninepence per week was fixed for each of the inmates.[1]

In many instances the leper hospitals were situated at the gates of the city[2]—as in London, York, Norwich, etc.—and the lepers were not allowed entrance within the walls. Frequently one finds the remains of hospitals in the midst of the city or town in the present day, but in the middle ages they were on the outskirts of the towns, and the enormous increase in size of the towns may make it appear that the hospitals were situate in the midst of them. Bury St. Edmunds was just such an example. About a century ago the five gates of the town were all pulled down, to afford a more convenient passage for traffic, but in the xv cent. there were remains of five different hospitals (St. Saviour's, St. John's, St. Peter's, St. Stephen's, and St. Nicholas'). Of these St. Saviour's was the most celebrated in Bury, and must have been a very extensive building, for it is said that Parliament assembled there early in xv cent.[3] Dr. Creighton says that St. Saviour's was not for lepers.[4]

At this period (Stephen's reign) it was found necessary to establish leper houses in Aylesbury, St. Albans, Bristol, Maiden-Bradley, Shrewsbury, Gloucester, Pilton, Warwick, Ilford, Colchester, and, a few years later, the great Burton lazar house, to which in after years others were annexed.

Eudo Dapifer, in the reign of Henry I, founded St. Mary Magdalene's, eastward of St. Botolph's at Colchester. King Stephen augmented this endowment, and Richard I.

[1] Robert Gardner, 'Hist. of Oxford,' 1852.
[2] Ducange, v, Scandelloe.
[3] Thomas Dugdale, 'England and Wales,' vol. ii, p. 327.
[4] 'Epidemics in Britain,' Creighton.

granted the lepers "liberty to hold a two days' fair."[1] We shall have occasion to notice that, amongst the different methods for supplying necessary funds, this quaint and curious plan of "fairs" was adopted.

At Ilford, in Essex, a hospital was instituted in the reign of Henry II. or before (Lysons). It was dedicated to the Virgin Mary and St. Thomas the Martyr, and was founded by Adelicia. Re-patronage of the house was confirmed by at least two kings—Richard II. and Henry IV. Amongst the old regulations there were two which read as follows:—

"That no married leper be admitted unless his wife at the same time become a nun.

"That the lepers go not out of the enclosure without leave."[2]

The primary establishment was for "thirteene pore men beying lepers, two pryests, and one clerke; thereof there is at this day but one pryest and two pore men." Such was the report in the commission of Edward VI. By the same royal commission (1547) most of the leper houses in England were reported as empty, although many apparently existed in Scotland and Cornwall. Harehope, in Peebleshire, would appear to be the first leper house north of the Tweed. It was founded by David I, who endowed it with land before 1150.

Gloucester had one of the few westerly leper houses;[3] it was situated in St. John's Parish and dedicated to St. Margaret. The exact date of its foundation is not known, but Alford, Bishop of Worcester, granted the lepers of it the privilege of burial in their own churchyard, about the middle of the twelfth century. Near to this is the hospital of St. Mary Magdalene (or King James's, as it is otherwise called), which owed its foundation to the Priory of Lanthony, and, like St. Margaret's, was originally intended for persons afflicted with leprosy. It was, however, in the reign of James I. diverted from its original object and made a charity for "nineteen poor persons."

[1] Thomas Dugdale, 'England and Wales,' vol. iii, p. 503; Sir William Dugdale, loc. cit., p. 631.

[2] Sir W. Dugdale, loc. cit., p. 628.

[3] Bigland, 'Gloucestershire;' Dugdale, 'England and Wales,' vol. v.

Another of the chief hospitals in the west was at Shrewsbury ;[1] it stood without the town in the east suburb. It existed unquestionably in the reign of Henry II. (Owen and Blakeway speak of it having a prior as early as 1136). The expressions in Henry's charter seem to imply, not a new foundation, but a gift to one already existing. It was supported and confirmed by royalty up till the second year of Henry V. John, in 1204, granted the Shrewsbury lepers the privilege of taking a handful of corn or flour from all sacks exposed in Shrewsbury market.

There are many records of King John's dealings with lepers to be found in documents of old leper-houses. Sir Duffus Hardy[2] tells us of a case in his reign where leprosy was pleaded and allowed, and the land belonging to the leper adjudged to his sister. In many cases, however, lands and belongings were taken entirely away from the leper's family, *e. g.* "The King to the Sheriff of Somerset, greeting : We command you to give to Geoffrey de St. Martin seizin of the lands which belonged to William of Newmarch in your bailiwick. For we have committed to him the custody thereof, so that he answer for them to us at our exchequer ; and if he (William of Newmarch) have given away any of his lands after he fell sick of the leprosy, cause the same to be restored to his Barony,"[3] which arrangement signifies that the leper had not even a voice in the disposal of his estate.

In a northern suburb of the City of Worcester[4] there stood a leper hospital, founded before 1268 and dedicated to St. Oswald.[5] The original endowment was for a Master, Chaplain, and four lepers. Green states that "small-pox was introduced to this country from the last of the crusaders, who also brought over leprosy, and that the two diseases were often confounded." Stowe affirms that this house was

[1] Blakeway, 'History of Shrewsbury ;' Phillips, 'History of Shrewsbury ;' Tanner, loc. cit., p. 640

[2] "Rot. Litt. Claus.," 'Record Commission,' Duffus Hardy.

[3] 6 Johan, 1204.

[4] 'Hist. of Worcester,' Valentine Green, i, 240.

[5] St. Oswald, King of Northumbria, son of Ethelfrith of Bernicia : converted to Christianity at Iona : died, 642.

founded by St. Oswald himself. It may have been so, and it may have been founded primarily for diseases other than leprosy. The first authentic date I have been able to find is 1268, when William de Beauchamp left ten shillings to it in his will.

Maiden-Bradley.[1] This, like many others of its kind, was founded by the liberality of one great family—the Bisets, cup-bearers to Henry II. In the beginning of the fourteenth century one of the heiresses, being herself a leper, gave her share of the heritage to help establish an hospital for leprous women at Maiden-Bradley, in Wiltshire. This hospital was in all probability founded by Manser Biset on the family land in Wiltshire. In King John's wars, Ralph d'Auxeville was imprisoned and threatened with death, but the leprous sisters of Bradley came to the rescue and provided a ransom. On account of this kindness, d'Auxeville granted them lands as endowment for their hospital, 5 virgates (= 150 acres), and these lands, with all the men that worked on them, were to be the support of the hospital, and much of this property, including Cumberton, Oldington, and the Mill of Mytton, remained in the possession of Maiden-Bradley for upwards of three hundred years. Lord Manser Biset conferred the church and living of Kidderminster upon the lepers of Bradley, and Walter Cantilope, Bishop of Worcester, assigned to them certain tithes of his parish in 1241. At the suppression of the monasteries and hospitals (1536–40), by far the larger portion of their property went to the avaricious courtiers of Henry VIII, Maiden-Bradley passing into the hands of one of the most grasping of these plunderers, John Dudley, best known as the Duke of Northumberland (Burton).

Sir William Dugdale[2] states that John, Earl of Moreton, afterwards king of England, gave a plot of land, in the twelfth century, without the Lachford Gate at Bristol, on the road leading to Bath, to build a hospital for the lepers of the town (St. John's). In 1437, the patronage of it was held by the mayor of Bristol. There were two other hospitals for lepers at Bristol. An interesting legend ascribes

[1] Hoare's 'Wiltshire;' Tanner, loc. cit.; Burton's 'Bewdley,' p. 83; Burton's 'Kidderminster,' p. 15.

[2] 'Monastic. Anglican.,' p. 670.

the discovery of the virtues of the Bath springs to King Bladud, "son of Lord Hudibras, king of Britain," (about two thousand years ago ?) In his youth he became infected with leprosy, and at the petition of the courtiers, who feared the contagion, his father banished him from the palace. The queen on his departure gave him a ring, as a token by which he should make himself known to her if he ever recovered. The young prince, when he reached Keynsham, met with a swine-herd, by whom he was retained as an assistant. In a short time he perceived that he had tainted the pigs with leprosy. The pigs, "impelled by sudden phrenzy," ran up the valley to the spot where the hot springs boiling up mixed their waters with decayed weeds and formed a bog. On washing themselves in this water the leprosy was dispelled. He doing likewise became whole, and returned to the palace with the ring. Hence, so it is said, arose the value of the Bath springs—probably legendary only.

Buckinghamshire had many records of the disease but not many hospitals, because there were so few places to establish them ; but at Aylesbury there were two.[1] They were both empty and destitute by 1360, which, seeing leprosy was by no means extinct by that date, is significant of the common mismanagement of these places.

In the neighbouring county of Hertford, Geoffry de Gorham, the sixth abbot, founded, in the time of Henry I, a hospital at St. Albans.[2] He was a man of great energy apparently, and enlisted the interest of two popes and two kings. In 1344, Abbot Michael de Montmore made special regulations for the government of the hospital. It was intended for *six* lepers and officers. Henry II. gave it a charter confirming its position and rights : "*Sciatis me concessisse et presenti cartâ confirmasse firmaose leprosis sancti Juliani de Heoed quiquid Gaufridus, Abbas Sancti Albani, consilio et communi assensu totius conventus sui, et alii eis rationabiliter concesserunt et dederunt.*"[3]

[1] 'Magna Britannica,' Lysons, 1806 ; Sir W. Dugdale, loc. cit., p. 631 ; Tanner, loc. cit.

[2] Speed, 'Hist. of Great Britain,' 1632.

[3] 'Add. Hist. de S. Albano ;' Sir W. Dugdale, loc. cit., p. 618.

The following were some of the rules to be observed by all the lepers in the St. Julian Hospital :[1]

"That those who were infected were to humble themselves below all other men.

"That they should wear a habit suitable to their infirmities, viz., a tunic and upper tunic of russet cloth, a hood and black cloak, stockings and flat shoes, with upper leathers about their ankles.

"That those admitted be single persons, or, if married, to part by consent and vow chastity, and if afterwards found incontinent to be expelled.

"To go to church regularly, and continue in brotherly love.

"None to go beyond the bounds prescribed.

"None to go into the bake-house or brew-house.

"None to touch anything, because persons under such a distemper are not to handle what is for the common use of men."

Their diet was not very varied. Each leper had seven loaves every week—five of white, and two of brown or black bread. Every seventh month each man had fourteen gallons of ale, and on Christmas Day each had forty gallons of ale ; on St. Martin's Day each had a pig from the common herd.

"For some years previous to 1349" (according to Mr. Trail)[2] "only one, two, or three of the six beds could find leprous occupants."

The mastership of Julian's is twice mentioned in the abbey chronicles as a valuable piece of preferment. In 1254, the lands of the hospital were so heavily taxed for the king and the pope that the *miselli,* according to Matthew Paris, had barely the necessities of life. In 1350, the revenues were too large for its need, and new statutes were made ; the accommodation of its six beds was by no means in request, the number of inmates never being more than three. The fate of the other leper houses of St. Albans Abbey, and that of St. Mary de Pratis, founded by Abbot Warren, about a century after St. Julian's (for women), is not less instructive. The date of foundation is unknown, but in

[1] 'Monastic. Anglican.,' 1718, p. 157.

[2] 'Social Life in England,' H. D. Trail, D.C.L., 1893 ; Simpson. loc. cit.

1254 it had a church and a hospital occupied by *misellæ*. A century later we hear of the house being shared between sisters and nuns.[1]

Hampshire had its fair share of leper institutions, even though the population was at one time very scant indeed (so much of the district being covered with forest). The leper house on Magdalene Hill at Winchester was perhaps the most important in the locality. It possessed a handsome chapel, one of the first in England that survived till the eighteenth century, when it was wholly demolished.

There were hospitals for lepers also at Christ Church, Andover, Newport (Isle of Wight) and Southampton (see list).

St. Louis brought twelve of the Knights of St. Lazarus into France, and entrusted them with the superintendence of the leper hospitals of his kingdom. They acquired a footing in England in the time of Stephen, especially at Burton Lazars, in Leicestershire, possibly, for that very reason, one of the foremost leper hospitals in Britain,[2] and to which hospital all the others in the country were made subject.[3] As the Maiden-Bradley hospital was established by the interest of a great family, so also was the hospital at Burton, for it was founded by one of the Mowbrays, "a gentleman" (as Hals says) "who was tainted with the disease."[4] Most of the revenue for its endowment seems to have been obtained by a general subscription throughout the country. Hals and Polwhele agree that it was at this period (Stephen and Henry II) that leprosy "generally spread itself over this kingdom," and it was therefore natural enough that the decree *De Leproso Amovendo* should be then issued for the removal of lepers to the various hospitals. Leprosy disabled the subject of it from suing any action, either real or personal, as, first, that he was a leper, and that by the writ *De Leproso Amovendo* was "*propter contagionem morbi predicti*," as the writ said,

[1] 'History of Epidemics in Britain,' C. Creighton, M.D., 1891, p. 91.

[2] Tanner, loc. cit.; Hals, 'History of Cornwall,' part ii, 1750, p. 160; Sir W. Dugdale, loc. cit., p. 632; Nichols, 'Leicestershire,' 1795.

[3] Polwhele, 'Hist. of Cornwall,' p. 88.

[4] Roger de Mowbray, Richard Orenge, Manser Biset, the son of the Earl of Leicester, Henry III, Henry IV, Baldwin IV, Robert the Bruce, and the Duchess of Brittany were amongst celebrities who were said to be lepers.

"*et propter corporis deformitatem*" to be removed from the society of men to some solitary place, and therefore as Bracton[1] said, "*talis placitare non protest; nec hereditatem petere.*" And herewith agreed John Breton[2] and also Fleta,[3] saying: "*competit etiam fit exceptis propter lepram manifestum ut si petens leprosus suerit et tam deformis quod a communione gentium merito debet separari talis enim morbus petentem repellit ab agendo,*" which was grounded upon laws in Leviticus and Numbers (Nichols).

It was decreed in the Council of Lateran (1179): "That whereas numbers of leprous people are gathered together in the community, they shall be permitted to enjoy to themselves a church, a churchyard of their own; but they must take care that this be in no way injurious or prejudicial to the rights of the parish churches; yet shall not the leper or lazar-houses be compelled to pay tithes for the increase of their own cattle" (Nichols).

The hospital was destroyed by fire in the fourteenth century, through the carelessness of a plumber. Its charter was confirmed many times—by John, Henry II, and Edward III.

Exeter[4] was one of the first founded in the south-west of England. The hospital was dedicated to St. Mary Magdalene. Lysons thought it the most ancient institution of its kind in England, and says it was in existence "long before 1163," when certain privileges were granted to it by Bishop Bartholomew Iscanus, who occupied the See, 1161–1184. Oliver[5] says that "St. Mary Magdalene (lying beyond the south gate and adjoining the parish of Holy Trinity) was not improbably erected before the Crusades"—a conjecture sanctioned by expressions in the charter of Bishop Bartholomew with reference to their long possession, ancient custom, remote times. "Probably" (he adds) "the establishment was increased in consequence of the Crusades, when we know leprosy became very common in Europe. In this diocese there was in the suburbs of most towns an hospital for the reception of persons afflicted

[1] Bracton, lib. v, fol. 421.
[2] Breton, vol. xxxix.
[3] Fleta, lib. vi, cap. 39.
[4] Lysons, 'Britannica,' vol. vi; Izachus, 'Exeter,' p. 11.
[5] 'Monasticon Diocesis Exoniensis,' G. Oliver, D.D., 1846.

with this disorder." Bishop Bartholomew granted five merks yearly, one tenth of the rents at Morchard and the profits arising from the bark of Chudleigh wood, and with his approbation the cathedral chapter allowed them "fourteen loaves weekly for ever." Oliver states that Bartholomew's charter ordered that *none* of the lepers should enter the city of Exeter, but he did arrange for a Proctor to collect alms. In 1437, the Bishop of the diocese pronounced excommunication on certain persons who had stolen documents from the leper house unless returned within fifteen days. The number of lepers therein was confined to thirteen, and amongst other restrictions they were prevented from going into the city (Lysons). This is denied by Hals,[1] who affirms that they were not sufficiently provided for, since on every market day they went into the market (whether that was within or without the city wall, it is clear they must have more or less mingled with the public) with a clap-dish, and went from one to another to beg corn and all other victuals there brought to be sold. They claimed this liberty it seems from the aforesaid will of Bishop Iscanus, who granted them a toll of all corn and bread sold in the several markets and fairs of the city; also that they should collect the citizens' alms on certain days of the week. They accordingly came into the city with their clap-dishes demanding the said toll, etc., but Hals states that they found little relief. This occasioned a permutation to be made between the mayor of the city and the bishop, viz., that the bishop should become patron of St. John's and the mayor of St. Magdalene's Hospital. (Brice affirms[2] that there were several leper hospitals at Exeter). In addition to this systematic begging, it appears that the hospital was also supported by means of funds accruing thereto from a fair,[3] which was held at the festival of St. Mary Magdalene. In 1463 it was granted to the corporation of Exeter, either to use on behalf of the lepers or to withhold, as seemed desirable. In 1454 the mayor himself, Richard Orenge, "although of noble parentage" (he came from a foreign stock of nobility), became infected with

[1] Hals' 'MSS. in Roche,' Brice, p. 548.

[2] Brice, loc. cit.

[3] Lysons, loc. cit., vol. vi.

leprosy. Thereupon he submitted to be removed to dwell in the said lazaretto, and there ending his days he lies buried in the chancel of the chapel belonging to the hospital. (This chapel was a ruin at the end of the seventeenth century, but was repaired in 1750). "A mayor of the city so patiently yielding to be set apart" was considered a piece of superlative goodness and piety. That leprosy prevailed widely in the diocese of Exeter we know on a high authority.[1] The will of Thomas Button, Bishop of Exeter, dated 1307, contained thirty-nine legacies to the lepers in his diocese at the following places :

"Exeter, Okehampton, Tavistock, Sutton, Plymouth, Cleve, Modburi, Chadelyntone, Dertermuth, Tottene, Honiton, Teignmouth, Nijweton-Ferrars, Toppesham, Deveneburi, Barnum and Pylton, Launceston, Treweton Setus Germanus, Lis Kyret, Dyn-mur, Bodmin, Lanford, Tony, Ponsmur, Schiepstalle, Resuregby, Coygon, Truru, Argel, Helleston, Glas, Moushole, Madern, S. Sancred Redruth, S. Brioc, Oldestowe, Medeschole." Lepers existed at Courtney and Bohun also.[2]

At Carlisle,[3] in the southern suburbs near Botchardgate, stood a hospital for twelve (Lysons) or thirteen men (Simpson), dedicated to St. Nicholas before 1180. It was supposed to be of royal foundation, and John, in 1201, sent letters of protection. Indeed, in 1336, Thomas de Goldyngton, then master of the hospital, brought a prohibition against the bishop, who was about to visit this house, on a suggestion that it was a royal foundation, and therefore visitable only by the king's commissioners; and in 1341 the said bishop was commissioned by the king to visit this hospital.[4]

It is said that when the Newcastle and Carlisle Railway was being made, a considerable number of human bones and urns were found on the site of the old leper hospital.

It was last destroyed during the Civil War,[5] 1646. It

[1] 'Lancet,' 1890; T. C. Button, of Exeter.

[2] 'Journal Archæolog. Association,' vol. ix, 1854.

[3] Tanner, loc. cit.; Sir W. Dugdale, loc. cit., p. 757; Lysons, vol. iv.

[4] Nicolson and Burn, 'Hist. of Westmoreland and Cumberland,' vol. ii, p. 250.

[5] Jefferson, 'Hist. of Carlisle.'

had been destroyed frequently before, in 1296 and again by the Scots in 1326. It was burnt in 1337.

The earliest reference discoverable is 1180, but by whom it was founded it is not known (probably William II). In Edward the First's time an "inquest" was held. Edward claimed the patronage of St. Nicholas against the Bishop of Carlisle, and secured his desire by the decision of a jury.

Things went quietly for a time, then in 1371, on a complaint being made by the Master that the house was cheated and defrauded of a great part of their sustenance, the Bishop (Thomas Appleby) issued an order that all unjust "deteiners of thraves" of corn and other goods belonging to the hospital should make full payment within ten days on pain of excommunication.

Sherburn Hospital, near Durham, was one of the richest endowed charities in the North of England, and certainly the largest leper establishment in the county. It was founded by the opulent Hugh Pudsey, Bishop of Durham, for the reception of sixty-five lepers, with a master and other officers, about the year 1184, just when leprosy was so prevalent in England.[1] "The old hospital stands on the west side of a square area of one acre, and consists of a neat but low building having a hall in the centre and a wing at each end; on the east side of the area is the master's house, the chaplain's apartments, and a house for a chief farmer; on the north side stands the chapel and the rooms of a new hospital built in 1820."

Such is the description by Dugdale. The square area above referred to was situated about one and a half miles south-east of Durham, and to the east of Sherburn Water. There were early in its history many lands and donations granted to the hospital, probably through the wide influence of Pudsey, "the joly Byshop of Durham." We have the record of many interesting details of the inner life of a leper hospital such as this, in Surtees' 'History' (vol. i, pp. 127—138) and Allan's 'Collections.' From these sources we learn that

[1] Dugdale, 'England and Wales,' vol. vii. Simpson, loc. cit. Sir W. Dugdale, loc. cit., p. 668. Surtees, 'Hist. and Antiq. of Co. Palatine of Durham,' 1816, vol. i, p. 127.

the daily allowance of the lepers was a loaf weighing five marks and a gallon of ale each ; and between every two lepers one mess or commons of flesh three days in the week, and if fish, then cheese or butter on the remaining four days : on high festivals a double mess ; and in particular on the Feast of St. Cuthbert in Lent, fresh salmon if it could be had, if not then other fresh fish, and on Michaelmas Day four lepers messed on one goose. With fresh fish, flesh or eggs, a measure of salt was delivered (the twentieth part of a razer). When fresh fish could not be had, red herrings were served three to a single mess, or cheese and butter by weight, or three eggs. During Lent each had a razer of wheat "to make furmenty," and two razers of beans to boil ; sometimes greens or onions ; and every day, except Sunday, the seventh part of a razer of bean meal, but on Sunday a measure and a half of pulse to make gruel. Red herrings were prohibited from Pentecost to Michaelmas ; at the latter each received two razers of apples.

The lepers shared a common kitchen, a common cook, and utensils and firing for cooking &c., viz. a lead, two brazen pots, a table, a large wooden vessel for washing or making wine, a laver, two ale pots, and two bathing pots. The sick (*i. e.* those unable to get about at all) had fire and candle and all necessaries, *donec melioretur vel moviatur*, and one of the chaplains was assigned to hear the confessions of the sick, and read the gospel to them on Sundays and holy days, and to read the burial service for the dead. The old woman who nursed the sick and the grave-digger were both fed extra when extra work had to be done. Each leper had a yearly allowance for his clothing of three yards of woollen cloth, white or russet, six yards of linen, six yards of canvas ; and on the day on which the "tayler" came to cut the clothes he had his meat and drink. Four fires were allowed for the whole community. From Michaelmas to All Saints they had two baskets of peat on the mess days, and four baskets daily from All Saints to Easter. On Christmas Eve they had four yule clogs, each a cartload, with four trusses of straw ; four trusses of straw on All Saints' Eve and Easter Eve, and four bundles of rushes on the eves of Pentecost, St. John the Baptist, and

St. Magdalene, and on the anniversary of Martin de Sancte Cruce every leper received 5*s.* 5*d.* in money.

The lepers had the liberty of seeing their friends; and strangers who came from a distance were suffered to rest in the hospital all night, but visitors from the neighbourhood departed in the evening, and when the bell sounded for supper the gates were closed.[1]

Disobedient members were punished at the discretion of their prior and prioress by corporal correction, *per ferulam modo scholarium*, and offenders who refused to submit to the usual discipline were reduced to bread and water, and after the third offence were liable to be ejected. All these constitutions Bishop Richard Kellaw confirmed by his charter and ordered to be ever thereafter inviolably observed.[2]

Yet before the lapse of a century abuses were complained of, the lepers neglected, and the whole hospital hastening to decay. Hence Bishop Langley's interposition and after application to the Pope, Eugenius IV., Langley made new regulations and ordinances for the better government of the hospital (*Nova ordinatio sive Reformatio Hospitalis de Shireburne per Thomas Langley Episcopium ex Commissione Eugenii Papæ* 4ti, 22 Inti., 1434). "On account of the reduced state of the revenues (of the causes of which reduction no account is given) the Master was only charged with the maintenance of thirteen poor brethren and of two lepers, *in memoriam primariæ fundationis si in partibus reperiri possunt*" (Surtees).

The hospital continued under the Langley statutes till 1557, when further complaints were made that the Master (Sir Thomas Leigh) had leased the whole possession to his own connections and had reduced the number to be maintained to eight. (Thus as the funds increased "the poor brethren" diminished in number from sixty-five to thirteen and then to eight.)

In 1593, there was appointed a general Commission to

[1] Many other details respecting the domestic life of the hospital may be found in Surtees' 'History of Durham,' and other records; much interesting matter of this nature appeared in the 'Nineteenth Century,' September, 1884, p. 475, *et seq.*

[2] 'Constitutiones Domus de Shireburne.'

inquire into all the charities in the diocese of Durham. In that report the Brethren of Shireburne are stated "to be chosen of one sex only, viz. *men*, but of sick or whole lepers or wayfaring there is no distinction in the same foundation." Surtees affirms that "long ago it would have been difficult to find a real leper in England," and so far the change in the original institution was satisfactory and entirely necessary.

With regard to leprosy in Wales, it is not easy to gather together much information, partly because there is but little in the way of chronicle extant, and partly because Wales was a wild country with a population less numerous even than England. But there are various references besides the Leper Laws of Hywel Dda which leave no doubt that leprosy existed and prevailed proportionately there much as it did in England. Evidence is forthcoming from a number of laws that were made relative to it. In Cyvreithiau Amryval the law states that "if a person became a surety, and before the termination of the suit he should become leprous, and should suppose he is no longer responsible in the law, we say that he must fulfil his promise while he lives;" [1] and though lepers were kept to such pledges more or less, they were never allowed to accept any new responsibilities or positions. Thus amongst the objections to a pleader were those of having violated his religious profession, or having become a leper (p. 516, and also Law xxiv, p. 764). Again: "Three sons who are not to have patrimony, the son of a priest, the son of a leper, and the son of a man who had paid his patrimony as bloodland: the son of a leper is not to have it because God has separated him from worldly kin, that is, such a son as a leper may have after being adjudged to a lazar-house" (p. 556), which seems to brand even the offspring of lepers as debarred from the rights and privileges of other men; and in another place (p. 603) we are told that the one reason for excluding a leper from patrimony was "that he is not of the world." Finally, Law cxii (p. 656) states that the "three persons to whom saraad is not due are a leper, a natural fool, and an

[1] 'Welsh Laws:' Record Edition by Aneurin Owen, 1841, p. 403.

alltud;" and in Law ccxiv. (p. 671) lepers are under no circumstances to be invested with "judicial function."

Various old Welsh records may be found on the treatment of leprosy. In the 'Book of Prescriptions of the Physicians of Myddvai,'[1] which was written, I believe, in the thirteenth century,[2] directions are given for compounding medicines for leprosy, *e. g.* that of pounding together various vegetable roots with salted butter and heating this to the boiling-point, then strain through fine linen and add flour of brimstone. This was assured as a certain cure for leprosy (p. 401). Another prescription was for the juice of cleavers or goose-grass (p. 444).

By the kind permission of Professor John Edward Lloyd of Bangor I may add here a note on the matter which I have received from him. Speaking of leprosy he says it was "undoubtedly well known in Wales in the Middle Ages. The mediæval name for it was clefri (clafr = a leper), the modern term gwahan-glwyf (= separation sickness) being a compound which we owe, I fancy, to the translators of the Welsh Bible. The evidence for its existence is—

1. The ancient Welsh Laws (referred to above). According to these a person adjudged a leper retired to a lazar-house, ceased to be of the world, might be divorced by his wife, might not act as a judge or advocate, might not inherit patrimony (nor might any son of his born after his separation from the world), could not avenge or be avenged upon in any family feud, and could not be the subject of "sarhad" or legal insult. When he retired from the world he paid an ebediw, or death due, to the lord as in the case of a death.

2. The proverb "Ni bydd adglaf o glafwr"[3] ('glafwr' is for 'glafr,' which means leper, not leprosy) = You will find no convalescent leper.

[1] 'The Physicians of Myddvai: Meddygon Myddfai,' by John Pughe, F.R.C.S., and J. W. Ab Ithel, M.A.

[2] Professor J. E. Lloyd thinks the MSS. "need not be older in substance than the sixteenth century. In the first passage the malady is called 'Tardd gwnhanol [*i. e.* separation = outbreak] a clwir, (which is called) y gwahanglwyf.' In the second the word translated is different, viz. 'y ddarwyden fawr,' which is later on glossed 'a clwir yn Lladin lepra.'"

[3] 'Diareb' (Myv. Arch., iii, 166).

3. The following place names—*Nant y Clauiorion* (in modern Welsh, Nant y Claforion [1]), mentioned in the Liber Landavensis (ed. gwenogfryn, Evans, 126), and possibly the same as the vallis leprosorum [2] (which is a correct Latin translation), mentioned in the same book (p. 227). *Rhydy-clawrdy*, three miles west of Pwllheli, Carnarvonshire, which was no doubt Rhyd y Clafrdy = the ford of the lazar-house. I can recall no historical reference to any Welsh "lazar-house." My attention has also been called by Professor Lloyd to the different terms used for leprosy appearing in Dr. John Davies' Dictionary (1632), which I add below.[3]

Just about the time that Baldwin, King of Jerusalem, was compelled to resign his crown owing to disablement from leprosy, there were about 2000 leper-houses in France, and two Popes, Lucius III and Clement III, made decrees concerning the disease. Approximately it was the time of the appearance of leprosy in Iceland; and, though not for the first time by any means (Belcher), a hospital was founded in *Ireland* at Waterford. Belcher [4] believes leprosy was prevalent in Ireland in A.D. 432,[5] and from that date it existed more or less (endemically) till 1775, when Waterford Hospital had its last case. A hundred years after its "first notice" it seems that there was (what was termed) a pestilence of leprosy (550).[6] "The rickets are of late very rife in Ireland," said Dr. Boate [7] in 1652, "where a few years ago unknown: so on the contrary it hath been almost quite freed from another disease, one of the very worst and miserablest in the world, viz. the leprosie, which in former

[1] Was probably in Dyfed (roughly, our Pembrokeshire).

[2] In Glamorgan.

[3] Brech yr luddewon = the Jews' pox.
Y gwahan-glwyf = the separation sickness.
Y clwy gwahanol or Clawr (= clafr) gwahanol = do.
Y clwyf mawr = the great sickness.
Y tardd gwahanol = the separation outbreak.

[4] 'Hebrew, Mediæval, and Modern Leprosies compared,' J. W. Belcher, M.D., 1864.

[5] Colgan's 'Acta Sanctorum.'

[6] 'Chronicon Scotorum.'

[7] 'Natural History of Ireland.'

times was very common there, especially in the province of Munster: the which, therefore, was fitted with hospitals expressly built for to receive and keep the leprous persons. But many years since Ireland hath been almost quite freed from this horrible and loathsome disease, and as few leprous persons are found there as in any other countrie in the world; so that the hospitals erected for their use having stood empty a long time, are quite decayed and come to nothing."

The earliest notice of a leper hospital in Ireland was in 869, when the hospital flourishing at Armagh was demolished and sacked during Arlaf's invasion.

The hospital at Waterford was established before 1185.[1] The Leper Hospital of St. Stephen was its name, and it stood by St. Stephen Street and was first endowed by the wealthy and influential family of Bowers. They gave it land (called Leper Town) in the parish of St. Killea, about five miles from Waterford. The hospital was under the direction of a master, "who was appointed during the pleasure of the mayor, sheriffs, and commons at a small salary, and has a clerk as an assistant. Formerly about fifty poor used to receive a yearly allowance by the master's hands. But as it was thought that a public infirmary would best answer the intent of the pious benefactor, since leprosy is not now (1740) a disease much complained of,"[2] hence endowments, &c., went to establish an infirmary.[3] In 1663, William Boyne, Esq., left ten barrels of wheat yearly for ever to the lepers.

Kilbrixy in co. West Meath followed, according to Archdale, in 1192.

Then came Dublin with its hospital on Lazar Hill. Several others followed there in the thirteenth and fourteenth centuries. There was one at Lepertowne between Dublin and Bray, another in Dublin at St. Stephen's, a fourth near Kilmainham, a fifth where old Mercer's Hospital now stands. There were hospitals also at Kilchief (co. Down) and at

[1] 'Monasticon Hibernicom,' Mervyn Archdale, M.A., 1786. Smith's 'Waterford,' p. 123. 'Dubl. Quart. Med. Journ.,' 1868 (Belcher).

[2] 'Ancient and Present State of Waterford,' p. 183, Charles Smith, M.D., 1745.

[3] 'Dubl. Quart. Med. Journ.,' 1868, Belcher.

Carrickfergus[1] and Downpatrick. The majority of them were, however, established in Munster (at Waterford, Wexford, Cork, Cloyne, Dungannon, and Lismore); Lismore Hospital had considerable wealth in lands, and paid an annual rent to all the other lazar-houses in Ireland.[2] The words *lour, lower, lowre,* indicate leprosy in names of places thus—Knockaunalour, Ballylowre, &c. Boate said that ill diet caused leprosy in Ireland, and it stopped when the English changed the diet by protecting the salmon fisheries. There was practically no leprosy after the seventeenth century.

There were many other leper hospitals also founded in England or already in existence before the end of the twelfth century, *i. e.* before they returned in sufficient number to increase disease.[3] Leprosy was at this period prevalent in England, but in all probability upon the decline.

"In the border counties of Scotland beyond the year 1200 there existed various hospitals for the exclusive reception of lepers, and in the immediately adjoining English counties of Northumberland, Cumberland, and Durham. Three alone of these hospitals contained as many as ninety-one lepers in all.[4] One of these was of course the famous hospital at Durham (sixty-five), the second at Carlisle with thirteen, and the third at Bolton in Northumberland, also with capacity for thirteen lepers. It was founded by Robert de Roos to support "a master, three brethren, three chaplains, and thirteen leprous laymen."[5]

The only settlement of the knights of St. Lazarus in Scotland was at Linlithgow (Simpson). This was founded during the reign of Alexander II, and restored under James I. (of Scotland). It was endowed, and had also a fair to augment its income.[6] But it may be assumed that leprosy did not in any case become prevalent in Scotland (using the word in comparison with leprosy in England) till the fourteenth century.

[1] 'Hist. and Antiq. of Carrickfergus,' MacSkimin.

[2] 'Waterford,' Smith, p. 22.

[3] Of course Crusaders had returned since 1098.

[4] 'Edin. Med. and Surg. Journ.,' Sir J. Y. Simpson, 1841.

[5] 'England and Wales,' Thomas Dugdale, vol. ii, 231.

[6] 'Leper Hospitals in Scotland at the Reformation,' Spottiswood, vol. ii, p. 874.

There were in England in the thirteenth century a number of leper hospitals founded, of which detailed mention is not necessary, as it would closely resemble what has been already said. (For the full list of thirteenth century hospitals, see list of dates.)

The Earl of Chester founded the Sponne Hospital, Mary Magdalene, at Coventry in Henry II's reign with half a carucate of land for any lepers in or around Coventry. Dugdale states that shortly afterwards it was appropriated by the monks.

The Stourbridge Hospital in Cambridge was founded by King John, the one king in England who cared greatly about his leprous subjects. The Bishop of Ely seized it later and used its income apparently for his own purposes.

Thetford in Norfolk[1] seems to have been quite a centre for lepers, for it possessed four different hospitals. Taylor believes that there were other hospitals in the diocese with chapels attached of which there is no record.[2]

St. John the Baptist Hospital (before 1216) was found to be insufficient for the need, and hence during Henry the Third's reign, the Earl of Warren built St. Mary Magdalene and bestowed lands, houses, and liberties as endowment. Like others mentioned it also had a fair.

St. John's, some authorities believe, was in existence before the Norman Conquest as a kind of charitable institution, but in the time of Richard II. it was changed into a leper hospital,[3] and it continued as such till the Dissolution. The same sort of experience befell the hospital of St. Margaret.[4] Amongst its privileges was an Indulgence allowed by the Bishop of Ely (J. Fordham) to all people who assisted the lepers by donations.

It has been said that St. Margaret's was converted into a leper hospital in the time of Edward III. (when more leper accommodation was necessary), and then transferred into a chapel again at a later date.[5]

[1] 'History of Norfolk,' F. Blomefield, 1739. 'Index Monasticus of Diocese of Norwich,' R. Taylor.

[2] Ibid., p. 14.

[3] 'History of Thetford,' Thos. Martin, F.R.S.

[4] 'Register,' Fordham, fol. 175.

[5] 'MSS.,' North, fol. 6.

During the fourteenth century various mandates and regulations were made. In 1346,[1] Edward III. ordered "that all persons who have such blemish (of leprosy) shall within fifteen days from the date of these presents quit the city and suburbs aforesaid" to solitary country life. The mandate also ordered "that no persons shall permit such leprous persons to dwell in their houses" on pain of forfeiture of house and property. In the same document there are references to the prevalence of lepers and the mixing of diseased people with the healthy, and that this should be prevented and fewer errors made and the diagnosis of leprosy placed in more skilled hands, "certain discreet and lawful men who have the best knowledge of the disease" shall make careful and diligent examination of suspicious persons.

Some twenty-five years later we hear of a case in point. "John Mayer, baker,[2] smitten with the blemish of leprosy was sworn before the mayor and aldermen at the husting holden on the said Monday that he would depart forthwith from the city and would make no longer stay within the same."[3] And many other cases might be brought forward to illustrate not only the prevalence of the disease of "leprosy" but also the difficulty that the municipal authorities had in controlling lepers coming in and going out of the city. It was only three years after the case of Mayer that the porters at the city gates of Aldgate, Bishopesgate, Cripulgate, Aldwichesgate, Newgate, Ludgate, Bridgegate, and the Postern (near the Tower) were sworn before the Mayor and Recorder "that they will not allow lepers to enter the city or to stay in the same or in the suburbs thereof."[4]

In 1389, a curious revelation is brought to light of the method of management of misconducting lepers in the city

[1] 20 Edw. III, Letter-book F, fol. cxvi.

[2] It seems that no special trades were more infected by leprosy than any others. Simpson states in his 'Archæological Essay' that "ropemakers" were frequently attacked. This was because of their extract and social position. Generally speaking, it was the "villeins" amongst whom the leprosy spread, and next to them the "bordarii" (*e. g.* in Norwich).

[3] 46 Edw. III, Letter-book G, fol. cclxxxix.

[4] 49 Edw. III, Letter-book H, fol. xx.

hospitals, viz. a royal exemption of "our dear and well-beloved Robert Yvyughoo and Gilbert Rothyng, keepers and overseers of the lazars," from various municipal duties like inquests, juries, summonses, &c., because it is their duty "to chastise and punish offenders (lepers) against their rule" and "in doing these things the said Robert and Gilbert are oftentimes occupied and hard-worked" and "cannot occupy themselves about their trades and business so much as they find themselves occupied in their said duties," therefore considering "their meritorious labour, their unpleasant and onerous occupation," &c., they are to be exempted as above.[1] By which it would appear that the lepers were disorderly and also that their "overseers" were traders and business men giving some of their time to attendance and supervision of lepers' hospitals. All of which would confirm me in my belief that the general arrangements of the affairs of the leper-houses were in almost every way lax and irregular.

The separation of lepers above referred to was in no way a new regulation. Leprosy "being highly contagious," the lepers were separated from all human society.[2] (Carlisle believes that is why there was no leprosy in England in the seventeenth century.[2]) A like arrangement had been an established rule from the earliest antiquity. But to what extent this separation was enforced one may learn from the method of enforcement of the writ *De Leproso Amovendo*, which applied to a man who was a leper dwelling in any town who persisted in coming into the church or amongst his neighbours where they were assembled, to their annoyance and disturbance. Then he or she of the assembly might sue forth that writ for to remove him from their company. The writ arranged for examination and removal to a solitary place. But it seems if a leper kept himself within his house and did not converse or mix with his neighbours, that then he was not to be moved out of his house.[2]

This at once shows how very lax, careless, and therefore useless the "segregation" was. Besides, if leprosy were

[1] 13 Richard, 1389, Letter-book H, folio ccxlii.

[2] 'Historical account of the origin of the Commission,' N. Carlisle, 1828.

"contagious," would not this arrangement have been a most definite assistance to the spread of the disease by contagion? for as it is certain that many lepers were confined in the hospitals, it is just as certain that more were not.

They were kept out of the churches also. In the year 1200 at the Provincial Synod holden at Westminster, Hubert, Archbishop of Canterbury, decreed: when so many leprous persons were assembled that might be able to build a church with a churchyard to themselves and to have one especial priest of their own, that they *should* be permitted to have the same without contradiction; and in this manner they would be no longer injurious to the old churches. This arrangement was an almost exact counterpart of the Lateran Council, 1179. This same canon dispensed such communities of lepers from payment of tithes. But this part fell into disuse, for we are told by Strype[1] that in 1562, while Bobling Leper House was "not charged with any tenth" the leper hospital of St. Lawrence at Canterbury is taxed and payeth the perpetual tenths.

In many places this was done, and the lepers not only formed in such places a social colony, but also an ecclesiastical one; and this in addition to the before-mentioned fact that most of the "hospitals" in England were ecclesiastical institutions.

But in most places of course this special church and graveyard were quite impossible through lack of funds and lack of lepers. In many of these places arrangements were made by which the lepers were enabled to take some share in the church services by means of the leper window or squint-window or hagioscope. The exact reason for the squint-window is not quite clear. It was established at the wish of the public, either because they feared the contagion of leprosy or because they disliked the sight and presence of the lepers, whose poverty and disease caused them to be generally unsightly, and hence shunned. The first reason is the more likely, but probably both played a part in the custom.

The hagioscope consisted of "an opening or aperture obliquely disposed, carried through the thickness of the wall

[1] Strype's 'Life and Acts of Matthew Parker.'

at the north-east angle of the south aisle and the south-east angle of the north aisle of the church, or of the chapels eastward of the aisles, and which oblique apertures opened into the chancel. Thus at high mass the elevation of the host at the high altar and other ceremonies might be viewed from the chantry or other chapel or outside at the east end of each aisle or contiguous to the chancel. In general these apertures are mere plain, narrow oblong slits; sometimes, however, they partake of a more ornamental character, as in a chantry chapel on the south side of Irthlingborough Church, Northamptonshire, where the head of the aperture of this kind is arched, cinquefoiled within, and finished above with an embattled moulding. On the north and south transepts of Minster Lovell Church in Oxfordshire are oblique openings, arch-headed and foliated, and in the north of Chipping Norton Church in the same county is a singular hagioscope obliquely disposed not unlike a square-headed window of three foliated arched lights, with a quatrefoil beneath each light."[1] An aperture of this description is to be met with in a north chapel on the north side of Standground Church, near Peterborough. A number of leper windows existed in churches along the sea-coast.[2] These apertures, though not general, are by no means uncommon in our churches. Many exist along the east coast in Norfolk, Essex, Kent, as well as in Oxfordshire, Bucks, &c. The following are a few I have come across:

Ludlow (Salop).
Irthlingborough (Northampton).
Chipping Norton (Oxfordshire).
Minster Lovell (Oxfordshire).
Burford ,,
Oxford ,,
Dorchester ,,
Lynn (Norfolk).
York.
Christchurch (Hants).
Northamptonshire (several).
Mullion Church (Cornwall).
Kirkhampton (Cumberland).
Beaumont ,,
Standgrounnd (near Peterborough).
Studland (near Swanage).
Bridgwater (Somerset).
Minster (Isle of Thanet).
Dunchurch (Warwick).

[1] 'Principles of Gothic Ecclesiastical Architecture,' M. H. Bloxam, ii, 147.
[2] 'Pathological Soc. Transactions,' 1890, p. 1067.

Bidborough (Kent).
Send (Surrey).
Donnington (Salop).
Packwood (Warwick).
Tenby (South Wales) (several).

Not only was there the hagioscope, but other churches possessed a stone slab let into the sill of the window, and so placed that the leper could receive without actual contact with the administrator of the Sacrament.[1]

By the Provincial Synod of 1200, lepers were not compelled to give any tithes of their gardens or increase of cattle. Nor had they any rights or claims in a common law court. Nor were they ever called upon to fulfil any public, judicial, or responsible post.[2] They were disqualified for making a will[3] or inheriting property. This latter law had been known for two centuries, for according to the Venedotian code, "should her husband be leprous and she leave her husband, the wife is to have the whole of the property," *i. e.* it should not pass into the hands of a leper. They were dead in the eye of the law.

The leper was not looked upon in the eye of the law alone as defunct, for he was also cut off from the church and not allowed to share in some of its chief services, and in many cases the solemn ceremonial for the burial of the dead was performed over him on the day in which he was separated from his fellow-men and consigned to the leper hospital.[4] In short, he was from that moment regarded as a man dead amongst the living and legally buried, though still breathing and alive. The ritual of the French Church retained until a late period all the various ceremonies and forms to which the lepers were subjected.

Although not in chronological order, I may refer here to some of the old laws of Scotland regarding leprosy.

These are curiously contrary and extravagant, some being so mild and indefinite as to be useless, others so strict and severe as to be cruel and impossible to keep.

[1] In the Appendix will be found quotations anent leprosy from several poets, which are further interesting testimony to the disease (note 3).

[2] 'Ancient Laws of Wales; Dimetian Code and Venedotian Code.'

[3] A case is on record of a York leper (from the Markbridge Hospital) making a will which was proved valid ('Test. Ebor.,' 414).

[4] 'Leprosy,' C. N. Macnamara, 1892.

The more one reads of the quaint arrangements, so much the more does one feel convinced that "strict segregation," as understood and practised now-a-days, never entered the minds of those desiring to separate lepers from the healthy.

Sir James Y. Simpson (in his 'Archæological Essays,' vol. ii) mentions several old laws or municipal bye-laws relative to the banishment of lepers from society, one of which I give :—"Na lipper man sall enter within the portes of our burgh. And gif any lipper man uses commonly contrair this our discharge, to come within our burgh, his claiths quherwith he is cled sall be taken fra him and sall be brunt : and he being naked sall be ejected forth of the burgh." [1]

I have also been able to find the following amongst others :

"No lepers are to be permitted to enter the borough" in the neighbourhood of which was the hospital.[2] But this was paid so little attention to that very shortly afterwards, "the Chamberlain at his ayre is to enquire whether the Bailies thrice a year hold a visitation to put lepers out of the burgh." [3] Which curious regulation naturally enough encouraged a species of smuggling and deceit at the times of the "visitation" of the bailies, and in the intermediate periods secret and sometimes open disobedience to the regulation.[4] These laws dated from the beginning of the fifteenth century, and twenty-five years afterwards it was found necessary to make less stringent arrangements, seeing that previously the stricter law had been openly transgressed. Hence the following : "Lepers are not to come into burghs except on Mondays, Wednesdays, and Fridays, from 10 to 2 o'clock ; when a market falls on these days they shall delay coming till the following day ; lepers are to beg only at their own hospital, and at the town gate and at other places outside the burgh."[5]

This is very significant, and surely cannot be described

[1] Skene, 'Regiam Majestatem.'
[2] 'Stat. Gild.,' c. 18, i, 343.
[3] 'Art. Ing.,' i, 680, a.
[4] Ibid., i, 681.
[5] 1427, c. 8, ii, 16.

as "strict segregation." It is difficult to understand why the lepers in England might attend markets and in Scotland they might not. The same law continues: "Bishops, officials, and deans, at their visitations are to enquire if there be any lepers, and to denounce or report them if laymen to the King, and if clerks to their bishops; this statute to be observed under pains."[1]

By another law a century later, a provision was made for the removal of wandering beggars to their own parishes, but in the case of lepers this was cancelled on two separate occasions,[2] by which they were allowed to go where they chose and beg what they could, or reside in any leper hospital to which they could get admittance. A regulation in support of hospitals all over the land is a quaint revelation of the kind of care bestowed on the lepers, for it states that "tainted salmon or pork to be sent to the leper house"[3] in the neighbourhood, and "if there was not one, then destroyed"—and again, "when a wild beast be found dead or wounded in the forest, its flesh shall be sent to the nearest leper house."[4]

At the beginning of the fourteenth century, leprosy was still sufficiently common to call for further hospitals. This was less so in England and more so in Scotland. In England, probably before the commencement of the century, a hospital of some importance existed at *Chester*.[5] In the records pertaining thereto we find various items which add to our information of leper customs at this time in England. Ormerod[6] tells us that the hospital was situated at the east end of Forest Street, in a small extra-parochial district. It was founded by Earl Randle Blundeville, and was further confirmed and supported by Hugh Kevelioc and Edward III. During the siege of Chester it was completely destroyed. In the Harleian MSS.[7] may be found some account of the method

[1] 1427, c. 8, ii, 16,
[2] 1574, 1579, c. 12, iii, 88, 141.
[3] 'Frag. Collect,' c. 48.
[4] 'Leg. For.,' c. 22, i, 692.
[5] 'Notitia Monastica,' Thos. Tanner, M.A., 1787.
[6] 'History of Chester.'
[7] 'Harl. MSS., 2115, fol. 195.

of augmentation of income by means of tolls. "Certain toll from everything carried to sale at Chester market: one handful from every sack of wheat, vetches, or barley; two handfuls from every sack of oats or malt carried either on a horse or cart or in any other way; and wheat, vetches, barley, oats, salt fish, and produce of any other kind, and particularly salt, one handful from a sack and two from a cart; one cheese from every horse-load or cartload of cheese; one salmon from every horse- or cart-load; and in other fish such as sparklings, flukes, eels, &c., five from every horse's pannier, and one from every man's load. From fruits of trees, one double handful from each horse-load, and three double handfuls from each cart-load. From fruits of the earth, whether horse-loads or cart-loads, one handful. From all packages of earthenware, one piece of the same; to have one horse from the horse-fair; and from all carts drawn by oxen or horses carrying wood or brick, one piece of the same. To have also one boat with a fisherman above or below Dee bridge, with stallnette, flotnette, or dragnette, or any other kind of nette, night and day; and three stalls in Dee, called single lyne stalls; and not to be amenable to the justice, sheriff, or any other officers of the prince, except in the court of the hospital aforesaid." (In this plea are recited two charters of Randle Blundeville, 15 Henry VII, Harl. MSS., 2115, folio 195).

Many hospitals were supported by voluntary or compulsory tolls at markets. Proctors secured funds for some. The munificence of benefactors sufficiently endowed many others, and yet other like establishments were financed by means of Fairs. Perhaps the most famous of these was held at Stourbridge in the interest of the hospital at Cambridge. It was held in a field bounded by the Cam in the north and Sture in the east. The origin of it is involved in uncertainty, but it appears to have been granted by King John (1199—1216). Henry VIII. ultimately granted it to the Corporation of Cambridge. Its legal duration was a fortnight, and the chief articles for sale were wool, hops, leather, hardware, and on one day, horses; and the business transacted was extensive.[1] Other authorities say it

[1] Dugdale, loc. cit., vol. ii, p. 71.

lasted four weeks, and owed its success to the near ports of Lynn and Blakeney—hence there were many foreign goods sold there and many foreigners present.[1] English people came from all parts of the country and mixed freely together, and hence the fair became a centre for lepers and their interests.

Some regular amount, either proportionate or actual, went from this fair to the hospitals at Cambridge (St. Anthony and St. Eligius), which were in existence sometime previous to the fourteenth century. One of these Stourbridge-endowed hospitals was unjustly seized some thirty years before Edward the First's time by Hugh Northwold, Bishop of Ely, whose successor retained it, having placed in it certain officers and others, to the exclusion of the lepers who ought to have been, as in the past, supported there.[2]

At Lynn, Langwade, and Hardwick in Norfolk, and Beccles and Eye in Suffolk, leper hospitals were established as late as 1330. But there can be no doubt that leprosy was very much on the decline in England even in the Eastern counties.

The two localities where it seems to have flourished many years after it had died out in other places, were in Scotland and in Cornwall. During the fourteenth century various leper institutions and leper laws, both ecclesiastical and political, were established over the Tweed.

As far back as the twelfth century the disease was not only known there, but hospitals were by that time actually erected for the seclusion of its victims.[3]

At Kingcase, or Kilcais (as it was formerly called),[4] Ayr was one of the few wealthy leper hospitals in Scotland (Simpson).

Kingcase, on the coast of Kyle, was in the parish of Prestwick, and the hospital was dedicated to St. Ninian.[5]

[1] Gibbins, 'Industrial History of England.'

[2] Lysons, 'Britannia,' 153.

[3] If Liberton (near Edinburgh) means, as some believe, leper-town, it is interesting to know that the earliest mention we have of the place is 1153.

[4] 'Historic Ayrshire,' Robertson; 'Caledonia,' G. Chalmers, F.R.S.; 'Statistics, Sir John Sinclair, 1798; 'Statistical Account of Scotland,' v, 173.

[5] Ninian, b. 360 in the country of the Novantes near the Leucophobia

Tradition relates that the founder of this establishment was King Robert Bruce, who was, so it is said, himself afflicted with leprosy, "the result of hard fare, hard living, and hard work." The hospital was endowed with various lands in Dundonald parish and other places. Mackenzie Walcott also states that it was dedicated to St. Ninian, was half a mile from Ayr, and was endowed by Robert I. under a chaplain, for eight lepers. Like the leper hospital at Aberdeen, it was in 1654, subdivided into huts (tuguria).[1]

As the foundation charter of this hospital does not exist, it cannot be ascertained what number of persons were originally maintained in it. It appears, however, to have been governed by a guardian and a prior, and it also had a chaplain. In the reign of James II. the lands and hereditary office of governor were acquired by Wallace, of Newton, and it passed through various hands by auctions. Later it and its funds were used for any incurable disease, and in 1790 it was purchased for the borough of Ayr, which still holds the patronage.

Spottiswood[2] states that the Kingcase Hospital had eight lepers in it "who are each to have eight bolls of meal and eight merks yearly; and if there is but one he has the whole." As late as 1693, according to Simpson, there were lepers still at Kingcase. In March, 1693, a complaint, it seems, was lodged by the Procurator-Fiscal "anent the intruding of the lepers of Kingcase upon the priviledges only propper to the Burgers and freemen (of Prestwick) by there resorting to the shoar and taking up certain timber and other wrack, and casting greater quantities of peats and turf off the common, and moss, &c., which being seriously pondered by the magistrates, they ordained that none of the said lepers of Kingcase do so under the penalty of ane hundredth pund, *toties quoties*, to be paid by ilk ane of them in caise of failyie."[3]

of Ptolemy; ordained at Rome; instructed in monasticism by Martin of Tours, and returning before the year 397, he freed his countrymen from superstitious errors, and taught them the most important truths. He founded a Monastery at Whithorn, and erected a church which Bede declares to be the first built of stone. D. 432.

1 'Ancient Church of Scotland,' Walcott, p. 336, *et seq.*

2 'Leper Hospitals in Scotland,' Spottiswood, 476.

3 'Records of Prestwick,' 342.

It is singular to note what a large number of hospitals there were in Scotland at a very early date.[1] Only a very limited number of these were set apart for the reception of lepers. At the same time leprosy seems to have "continued prevalent in the northern islands of Scotland long after it had disappeared from the mainland, and indeed all other parts of Great Britain."[2]

"It had been known in the north as well as in Ireland for centuries. It was at Lerwick as late as the early part of the sixteenth century."[3] Leprosy was certainly existent in some parts of the Shetlands as late as the eighteenth century—in the island of Papa Stour till 1740.[4] Then it appears to have gone still further north to the Faröe and Iceland. (Iceland in 1768 had 280 hospital lepers, and accounts record lepers there up to the present day.)

The well-known entry in the Session Records of Walls (Papastour) regarding the "disappearance" of leprosy in 1742 is as follows:

"The Moderator proposed to the Session that, considering that a gracious Providence had not only delivered the island and country from the burden and necessity of maintaining and otherwise providing for the poor lepers formerly in this island, but had also put a stop to the spreading of that unclean and infectious disease, so that there is no appearance of the symptoms thereof in any person now in this place, the Session should therefore ordain a day to be set apart for solemn thanksgiving for so great a deliverance throughout this ministry, excepting Fowla, which we can have no access to inform. The Session having heard the Moderator's proposal, was cordially satisfied therewith, and did agree unanimously that a day be set apart for solemn thanksgiving on the above account throughout the bounds of the ministry, excepting Fowla, as above said."[5]

Several cases of leprosy did appear in 1772 and 1776. In 1778 there were further cases—some of which were sent

[1] Spottiswood, loc. cit.
[2] Simpson, 'Arch. Essays,' vol. ii.
[3] Simpson, loc. cit.
[4] 'Statistical Account of Scotland,' Sir J. Sinclair.
[5] 'MSS. Session Register of Walls,' March 17th, 1742, vol. xx, p. 101.

to the hospital at Edinburgh.[1] The last actually reported case of endemic leprosy in the Shetlands was in 1798, and lay for some time in the infirmary wards at Edinburgh.

It is recorded that in 1809 "scarcely an instance of it is to be met with" in Shetland, though but a very little time before "obscure degrees" of it had occurred. "Formerly when this affection was prevalent the unfortunate individuals who were seized with it were removed to small huts erected for the purpose, and here received a scanty allowance of provisions daily until the disease put a period to their miserable existence. The parish of Walls and the island of Papastour, on the west side of the country, appear to have been among the places in which it raged with the greatest malignity."[2]

We shall learn of the progress and decline of the disease in Scotland by some short notice of the various leper hospitals in the country.

The famous Greenside Hospital at Edinburgh according to some authorities started in the fourteenth century as a leper-house, others think as an ordinary hospital and it became a leper-house as the need arose at a later date.[3] It is recorded as existent in 1584.[4] Probably it was built in conjunction with the Act of the Magistrates of Edinburgh. Sir James Simpson points at "an awld fundation of the Lipperhous besyde Dyngwall," which formerly stood near Shakespeare Square. In 1591 all authorities agree that it had at least five lepers in it.[5] Spottiswood is of opinion that it was established in the fourteenth or fifteenth century (1479 ?).[6] It did not, apparently, last very long, for in 1652 it was demolished by the magistrates.

The lepers, it seems, were kept in awe by the gallows, as the latter was the penalty for opening the gate between dawn and sundown. In turn each leper sat at the door

[1] Rannie, Session Clerk at Papastour.

[2] 'Ancient and Present State of Zetland Islands,' A. Edmondstone, M.D., vol. ii, p. 102.

[3] Chalmers, 'Dom. Ann.,' i, 227 ; Chalmers, 'Caledonia,' ii, 760 ; Wilson, 'Eccles. History,' ii, 191 ; Arnot, 257.

[4] City Council Records, 1584.

[5] Simpson, loc. cit., ii, 13, *et seq.*

[6] 'Leper Houses in Scotland at the Reformation,' Spottiswood.

ringing his clapper and asking alms, which were dropped into his cup. Their allowance was only 4*s*. (Scotch) a week to each inmate. John Robertson, a merchant, was the founder. The regulations, though apparently strict as regards entering and leaving the hospital, were not so in all respects, for we are told that sometimes the lepers' wives lived with them. The begging, too, was differently arranged in comparison with the hospital in the sister city of Glasgow, where the lepers were allowed to go about the city and district with a cloth over their faces, drawing attention by means of the clapper and asking alms.[1]

At Glasgow, according to Simpson, there was a hospital as early as the middle of the fourteenth century.[2] It was dedicated to St. Ninian,[3] was founded by the Lady of Lochow during the reign of David II, and was fairly well endowed with lands.[4] In 1589 there were six lepers in the house.[5] Walcott believes that it was founded in the middle of the fifteenth century.[6] He tells us, further,[7] that the characteristics of a leper hospital in Scotland were as follows:

A lazar house was composed of separate cells (*domus, hospitia*) ranged round a quadrangle, and contained a well, a chapel, a common hall, kitchen, and dormitory; and a mansion for the 'sound.'" The lepers were not in community (*non sociati*). Dr. Robertson tells us[8] that in 1528, James Houston, sub-Dean of Glasgow, ordered twelve pennies to be distributed yearly to lepers beside the bridge at Glasgow. The town kirk was on the north side of the Clyde and in the burgh, and therefore in 1582, lepers were allowed in the burgh. The feeling towards lepers, however, was not the same in 1593, when all lepers were banished from Glasgow by Kirk-session.[9]

[1] 'Ancient Church of Scotland,' Walcott, 336.
[2] Simpson, loc. cit.
[3] 'Rec. Eccles.,' 489. Chalmers, Maclure, Spottiswood, and Walcott agree.
[4] Spottiswood, loc. cit.
[5] Simpson, loc. cit.
[6] Walcott, loc. cit.
[7] Ibid, p. 384.
[8] Appendix to 'Arch. Essays,' vol. ii, J. Robertson, LL.D., 162.
[9] 'Acta Parliamentorum Scotiæ,' vol. i.

It was in 1584 that the magistrates of Edinburgh issued orders for finding a place for lepers, and just about the same time the Kirk-session of Glasgow ordered that "the lepper folks house or spittal beyond the bridge should be visited to see how the same should be reformed." This was done in 1587, and repairs were undertaken in 1588. In 1589, six lepers were in the hospital.[1] It was just at this period that there seems to have been an increase of leprosy in Scotland. In 1593 all the lepers were cleared out of the town of Glasgow for fear of infection, and, in addition, the admittance into the hospital was limited to townspeople only.[2] In 1593, the rental of the leper house amounted to £7 "and eighteen bolls of meal."

Aberdeen.—A leper hospital (St. Anne's) existed here previously to 1519. It was supported by public funds of the city, and consisted of several separate houses.[3] Dr. Robertson states that the hospital existed before 1363, and was subdivided.[4] The Regent and Priory Council interposed for the repair and restoration of the hospital in 1574. In 1578, it was placed under the charge of a master, and there were still patients in it in 1591.[5] If there really was an increase of leprosy in Scotland (1580—1590) it speedily abated, at least in Aberdeen, for the hospital was empty in 1604.[5] In the same Aberdeen Records we are told that two merks were to be given "to lepper woman laitlie put in the lepper-hous, becaus she will not gett any of the rent of said hous till Martenes next." In 1612, another leper appeared on the scene in the shape of an alien, not an Aberdonian, and in 1661 the last scene of endemic leprosy seems to have occurred in the razing to the ground of the hospital.[6]

Other leper hospitals were at Aldnestun[7] as early as the twelfth century, under the jurisdiction of Melrose; Aldcambus, in Berwickshire, also in the twelfth century;

[1] Wodrow's 'Biographical Collections,' vol. ii, pt. ii, p. 40.
[2] Wodrow, loc. cit.
[3] Simpson, loc. cit.
[4] 'Reg. Episcopatus Aberdonensis,' vol. ii, 283.
[5] 'Eccles. Rec. of Aberdeen,' pp. 20—23, *et seq.*
[6] Heutzner, 'Promptorium Parolorum,' p. 298.
[7] Simpson, Walcot.

Ligerswood,[1] in Lauderdale (St. Mary Magdalene), founded by William, son of Alan; Govan[2] (St. Ninian's), founded in the fourteenth century by the Lady Lochaw; Dingwall Castle,[3] a leper house under the Provost of Trinity College; Rothfan,[4] in Elgin (St. Peter's), founded by John Byseth (or Biset) for a prior, chaplain, and seven lepers.[5] Simpson believed it was founded early in the thirteenth century, in the reign of Alexander II (son of William the Lion). By way of endowment it had the patronage of the Kirk of Kyltalargy.[6]

Dr. Robertson, speaking of the Rothfan Hospital, says its first charter was granted, 1224—1226. He affirms that the founder Bissett was a kinsman of Manser Bisset, who aided various leper establishments in England in the time of Henry II. It appears that in 1296, Friar William Corbet (master) had letters for the restitution of his lands directed to the sheriff of Edinburgh from Edward I. of England as over-lord of Scotland.[7] In 1376 a charter was granted by Robert II. with regard to lands belonging to the lepers at Harehope.[8] In 1563, the hospital was worth £35; in 1798, £3.

Stirling possessed a lazaretto also at the end of the town, founded in 1463,[9] and there were lepers there as late as 1512.

At Perth a leper hospital existed on "Leper-Croft,"[10] and in the records pertaining thereto we are told that it was a "public leper hospital," and that "such hospitals were maintained beyond the walls of every considerable burgh in Scotland."

At Harehope, in the south-west of Eldneston parish, in

[1] Simpson, Walcott.
[2] Chalmers, 'Caledonia.'
[3] Walcott.
[4] Walcott.
[5] 'Antiquities of Aberdeen,' ii, p. 142; Walcott, loc. cit.
[6] Spottiswood, loc. cit.
[7] 'Rot. Scotiæ,' vol. i, p. 25.
[8] 'Reg. Magni Sigilli. Reg. Scot.,' p. 132.
[9] Walcott, loc. cit.; 'Rot. Scaccarii Reg.,' Scotorum MSS., in General Register House.
[10] 'Reg. Sheriff Court, Perth;' 'Eccles. Annals, Perth,' R. S. Fittis.

Peebleshire, there was a leper hospital founded by David I, who endowed them with certain land for maintenance.[1]

The fourteenth and fifteenth centuries were an important period in the decline of endemic leprosy in England. Edward IV. (1461—1483) appears to have made various attempts, all of which were more or less successful, to make manifest to the public the satisfactory and progressive decline of leprosy. In 1468, he ordered his three court physicians to report concerning a case of alleged leprosy, and their certificate herewith appended is one of the few English medical reports concerning the disease still left to us.

At the end of the Middle Ages leprosy was almost extinct in Italy, and very shortly thereafter Pope Innocent VIII. suppressed the Leper Order of St. Lazurus on account of the marked decrease in the disease. It was the time of an immense development of new life in Europe. Printing had been introduced, and also gardening. Discovery and colonisation had widened the world and men's thoughts, and it is noticeable that just as this period (the end of the fifteenth and the beginning of the sixteenth century) was the end of what may suitably be called the Dark Ages in England, so also, with two significant exceptions (Scotland and Cornwall), it was the end of the ravages of endemic leprosy in these islands.

Between the years 1530 and 1540 occurred (by the order of Henry VIII) the Suppression of the Monasteries, including many of the existing leper houses. Carlisle's[2] enumeration of the objects suppressed is as follows :—645 convents, 90 colleges, 2734 chantries, and 110 hospitals. Speed[3] also gives these same figures ; Tanner[4] differs. He gives more than 200 general hospitals in England up to the time of Henry VIII, when, as he says, " that deluge arose which at once swept away what the mistaken zeal and piety of many ages had raised."

He described these hospitals as places " originally designed for relief and entertainment of travellers upon the roads,

[1] Spottiswood.

[2] ' Hist. Account of the Commission to enquire into Charities,' N. Carlisle.

[3] ' Hist. of Great Britain ' (1632).

[4] ' Notitia Monastica,' preface, pp. v—viii.

and particularly of pilgrims." Even kings lodged at them in their journeyings.[1] These statements throw considerable light on the exact part these so-called hospitals fulfilled; they were apparently but little more than wayside inns. He does seem to agree with other authorities that the leper "hospitals" were places set apart for lepers, of whom he says there were many, partly as a relief for them and partly as protection to the public health.

The suggested causes of the Dissolution are various:

1. It is believed by many that one cause was the disorderly state of affairs prevailing at many of these places. The management in many cases was superlatively bad, and the privileges grossly abused. It is probable that if they had not been suppressed, it would have been absolutely necessary to radically reform them.

2. It was the time of the Reformation and Martin Luther, and this was in some measure the active cause of the throwing off by England of the supremacy of the Pope of Rome, and with that naturally came the throwing off of the great influence of the monastic orders. As has been seen, many of these hospitals were in the hands of the Friars. "The work of the Friars was physical as well as moral. The rapid progress of population within the boroughs had outstripped the sanitary regulations of the Middle Ages, and fever and plague or the more terrible scourge of leprosy festered in the wretched hovels of the suburbs. Their first work lay in the noisome lazar-houses; it was amongst the lepers that they commonly chose the site of their homes. At London they settled in the shambles of Newgate; at Oxford they made their way to the swampy ground between the walls and the stream of Thames."[2] So that it is easy to understand that if the monks' influence abated, then the monastic institutions in the country would practically lose their power and support.

3. Some authorities think that the act of Henry VIII. was a good and pious deed; that he wished (*a*) to prevent the monastic revenues from being squandered and mis-spent,

[1] Blomefield, loc. cit., ii, p. 126.

[2] 'History of the English People,' J. R. Green.

as doubtless they had been; (*b*) and to put down the wickedness and immorality that occurred.[1]

4. A far more likely cause is that Henry wanted the money, and as the people were anxious to save their own pockets any additional taxation, the suppression of the monasteries was to all concerned the easiest way out of the difficulty.

"The monasteries suggested themselves to him as an easy prey, and he knew that an attack upon them would not displease the growing Protestant party in the country. These institutions were in many cases not fulfilling their ancient functions properly, and were often far from being the homes of religious virtue."[2]

This case is all the more likely to be the correct one, for we possess confirmation of it in the fact that Henry bestowed many of the lands and monastic inheritances upon favourites at his court. At least £32,000 came annually to the Crown[3] (Gibbins says £161,000 was the annual income of the suppressed houses; not a little of this Henry spent in founding some schools and bishoprics to deceive the people.)

5. There can, I think, be no doubt at all that many of the leper hospitals which were suppressed at this time were closed simply because there was no further need for them to be open. Dr. Steele believes that "though the suppression of the monasteries in this country put a stop to the infirmaries connected with them, the leper-houses continued their operation till the disease itself gradually disappeared from the kingdom." "There were," he adds, "two if not three leper establishments affiliated with St. Bartholomew's Hospital (in London) so late as the seventeenth century."[4] In this view I largely share, only I think that there is evidence to show that in 1539 the majority of the leper-houses were empty. We cannot accept the suppression of monasteries as in any sense caused by the diminution of leprosy, though there were, and had been, in some cases for a long period, empty leper-houses which were then closed. Endemic leprosy in the time

[1] 'Hist. of Great Britain,' Henry, vol. vi, p. 434.
[2] Gibbins, 'Industrial Hist. of England,' p. 83.
[3] Tanner, loc. cit.
[4] Statistical Society, 1878, Dr. Steel.

of Henry VIII. was far too rare to call for more than a very few hospitals in the whole length of the land. Indeed, it was only a very few years after, that Edward VI. appointed a Royal Commission to enquire into the state of the leper hospitals not suppressed, and it reported (in 1547) that most of the leper-houses in England were empty.

By slow gradations the disease had greatly abated, although it had not entirely disappeared among the lower orders; but in the event of any contagion spreading—which was more or less believed in and feared—lepers were not compelled (by the Act in the first year of Edward VI.) to leave their domicile, like the monastics on the suppression of religious houses:

Act 1. Edward VI, c. 3, s. 19: "All leprous and bed-rid creatures whatsoever may at their own libertie be allowed to continue in such houses appointed for lepers or bed-rid people, and shall not be compelled to repair into other countries or places appointed by this Act." And it was "made lawful for all lepers to appoint proctors for each house, not more than two to gather alms of all such inhabitants who were within four miles of the said house."[1] This permission was speedily abused. Sturdy beggars went about with a clap-dish, and pretending they were Proctors to a leper-house, terrified people into contributing. (Proctors were put down by Act 39. Elizabeth, c. 4.)

Soon after the middle of the sixteenth century, it is significant to note an inexplicable increase of leprosy almost solely confined to Cornwall and the surrounding district.

The hospital of St. Margaret, about half a mile from Honiton[2] on the road to Exeter, was founded according to Lysons in 1530[3] for lepers, by Thomas Chard, the last Abbot of Ford. Oliver, in his notes from Bishop Brantingham's Register, declared that it existed as early as 1374, which I think is very likely. After the dissolution of colleges and hospitals, the representatives of Chard became possessed of this Hospital by an Act of Henry VIII. to be trustees

[1] Dunkin, 'Hist. of Dartford.'

[2] Sir W. Dugdale, loc. cit., p. 759; Lysons, vol. vi, p. 283.

[3] Lysons, vol. vi, p. 283.

thereof on behalf of the four lepers then in residence. In 1642, it was ordered that the hospital should be thenceforth under the management of the Rector of Honiton, who should appoint the governor and four lepers (this appeared to be the capacity), or in default of such objects, other poor persons. The lands belonging to the hospital were then valued at more than £25 per annum.

Plympton, Plymouth, and Pilton were also centres of leprosy, founded, according to Sir W. Dugdale[1] and Lysons,[2] in 1370, 1374, 1197.[3] That at Pilton, Lysons thinks, may have been in existence in 1190, and was for both sexes; it flourished up till a recent date, but was quite empty and obsolete in 1800.

At Totnes, in Devon, the hospital of St. Mary Magdalene was founded for eleven lepers. In 1547 at the time of the commission there were eight, and it also was empty for many years before 1800.

Bodmin.[4]—About one mile east from the town, which is situated between two hills, stood the Lowres Hospital (from *loure, lower,* a British term meaning a leper) for lepers, dedicated to St. Laurence. It is not known when the hospital was established, but in 1395, Bishop Stafford granted an Indulgence which was repeated in 1435.[5] Queen Elizabeth granted a charter in which it is stated that there were and had been "a great company" of lepers in this hospital. A few months after his accession, James I. granted them—there were then, according to Lysons, thirty-nine lepers—a weekly market on Wednesdays, and "an annual fair with a court of piepowder on the festival of St. Luke." "In the time of Elizabeth," says Polwhele, "leprosy seems to have been frequent in Cornwall." He believes that the disease first spread in England about 1100, and was largely due in Cornwall to traders. It would appear that at the Bodmin Hospital—even though the *leproso amovendo* was in action—

[1] Loc. cit., p. 759.

[2] Loc. cit., vol. vi.

[3] Soc. of Antiquities, 1795, Incledon of Pilton.

[4] 'Monastic. Exon.,' G. Oliver, D.D.; Lysons, vol. iii; Polwhele, 'Hist. of Cornwall,' 1806.

[5] 'Monastic. Exon,' Oliver, loc. cit.

the custom was that none were to be admitted by the governors "unless the leper so brought in payd them £5, a pot for dressing his meat, a purse (and a penny in it) to receive alms." In 1800 there were no lepers in the hospital, "nor indeed any one person touched with the disease in the whole county of Cornwall," although the "chappel" adjoining was frequently used. Elizabeth not only granted a fresh charter and thus took the Bodmin lepers under her authority, but she augmented the lands and privileges with the jurisdiction of a Court-leet within the precincts of its manor of Ponte-by (a white rod to be erected yearly while the Court sat); she also assisted it materially in revenue.[1]

Launceston.[2]—St. Leonards was founded at an early period, but the site was removed, towards the middle of the thirteenth century, to Gillemartin, at or near the junction of the rivers Kensey and Tamar. At one time there were constant complaints of the lepers that they were defrauded of their rights.

The close of the sixteenth century witnessed further efforts on behalf of Queen Elizabeth to amend the position of, and attention paid to, the lepers. In 1597, she had an Act passed for the suppression of Proctors. The system of Proctors was established to overcome the difficulty of allowing the lepers to parade the cities and mix with the public on the plea of obtaining alms,—so great was the fear of contagion, which was fully and widely believed in till the seventeenth century, when Fernelius and Forestus first called it in question. But one can readily believe that such a system of Proctors would very soon be abused; thus it happened, and the proctor system was put down by legislation.[3] Two years later it is recorded that Heutzner, travelling through England, was struck with the frequency of leprosy.

Salads, carrots, turnips, potatoes, tobacco, tea, hops, and watches, became common in England during this century, and it is not to be doubted that the whole social life and diet had materially altered since the fourteenth century. But, in addition, the opening of the seventeenth century

[1] 'Hist. of Cornwall,' William Hals, 1750.

[2] Lysons; Sir W. Dugdale, loc. cit., p. 757; Carew, 'Cornwall,' p. 186.

[3] 39 Elizabeth, c. iv.

witnessed the rise of modern science. Leprosy was at that time of very rare occurrence in England, and may be considered to be extinct as an endemic disease, with the exception of the northern islands, Shetland, Orkney, Faröe, and St. Kilda (the Hebrides).

In this lonely island, the most westerly of the Hebrides, leprosy apparently "broke out" in 1684[1] or later.[2] In the middle of the eighteenth century there were two families labouring under the disease.

[1] Simpson, loc. cit.
[2] Martin, 'Voyage to St. Kilda,' 1753, p. 41.

REGARDING THE DECREASE IN LEPERS IN ENGLAND.

After a careful investigation covering a very large mass of literature, I am decidedly of the opinion that leprosy commenced to show material and perceptible signs of decline during the thirteenth and fourteenth centuries. There are, it is true, some references and authorities which place the commencing decline a century earlier, but the vast majority declare the end of the fourteenth century to be the period of decline.[1] It is, of course, impossible to produce any exact evidence on the point. Statistics are almost wholly lacking.

The disease probably reached its zenith during the thirteenth century.

One of the earliest records dealing with any decline in lepers or leprosy in England may be found in an old statute of the St. Albans Hospital drawn up in 1350, in which decrease is noted in the words: "In general there are now not above three, sometimes only two, and occasionally one." This, of course, may have had relation to the locality only, or may have been due to many other lesser causes besides decrease of the disease. In 1344 the Women's Leper Hospital at Tannington was empty.

[1] Simpson, loc. cit.; Hunstanton, 40, 41, Henry III; Kaposi, Hebra, 'Skin Diseases'; Green, 'Hist. of England'; Jessop, 'Six Hundred Years Ago'; 'Hist. Commission,' report iii, p. 271; Leland, 'Itinery;' Thin, 'Leprosy'; Hirsch, 'Geog. and Hist. Pathology'; White, 'Nat. Hist. Selborne'; Denton, 'England in the Fifteenth Century'; Rose, 'Leprosy and its Prevention'; Macnamara, 'Hygiene and Warm Climates'; Hutchinson, 'Brit. Med. Journ.,' 1890, p. 665; &c.

Still there can be no doubt, I think, that long before this lepers were disappearing or getting displaced from houses specially founded for them.[1] And I am quite prepared to agree generally with the statement of Dr. Creighton that the amount of true leprosy would not be much higher than the leprosy percentage in India (for example, in Burdwan) at the present time. But I think his figures are, if anything, too low (viz. 2·26 per 1000). Mr. Trail[2] declares that the leper-houses were never numerous, "not more than fifty," and "only a small fraction of all the charitable houses in England, perhaps one sixth or one eighth." This calculation seems to me to be entirely below the mark. His total number of "beds" in all the British hospitals amounted to under 100. But in three of the northern hospitals alone, there were ninety "beds." Certainly these calculations, if the records of history are to be trusted in the least degree, are not altogether correct. That the Oxford Hospital was nearly empty in the time of Edward II. was due, apparently, not to the decrease in the disease, but to the fact that the hospital was bankrupt through disorderly management and thieving; and even then, it was not, as he says, "empty," but contained six. Mr. Trail assures us also that the Cambridge hospital was "alienated from the lepers" by the Bishop of Ely. Undoubtedly it was, and by him handed by treachery to his successors in the bishopric. That was not because it had no lepers, for it was well supplied, but because it had a handsome revenue from the Sturbridge Fair! Mr. Trail is correct in stating that in 1349 (the middle, be it noted, of the fourteenth century) St. Albans had not sufficient leprosy for its endowments and revenues. But no authority that I can discover attributes the decrease of inmates at Sherburn in 1434 to a decrease of national leprosy. The cause of the new regulations for the great Durham hospital is stated to be "on account of the reduced state of the revenues,"[3] (of the causes of the reduction Langley gives no account, for a very obvious reason), and hence "*si in partibus*" two lepers might be found, they were to be admitted, which, after the

[1] 'Hist. of Epidemics in Britain,' C. Creighton, M.A., M.D., 1891.

[2] 'Social England,' H. D. Trail, D.C.L., 1893, vol. i, pp. 367—370.

[3] 'Nova Ordinatio sine Reformatio,' Bishop Langley, loc. cit.

incessant persecution and maltreatment that the lepers had received there for seventy years, was not to be expected. I think there can be no doubt that in 1434 leprosy was decreasing, but it is in no way proved so because certain hospitals were nearly or entirely empty. The religious fervour of the Friars was dying out, and the wealthy revenue of many of their institutions was a temptation to avaricious neighbours too great to be resisted. From the middle of the thirteenth to the end of the fifteenth centuries these endowments were plundered all over England.

In his second volume Mr. Trail remarks: "We may be sure there was no longer leprosy in the country" in the fourteenth century. But we have already seen that there is evidence to the contrary. Again: "The disappearance of leprosy from England," he says, "in the fifteenth century may be taken as absolute." Comparatively with the eleventh and twelfth centuries it probably was so, but leprosy flourished in Cornwall (and Scotland) in the sixteenth century.

Mr. Denton[1] declares that leprosy was exceedingly common in England; that endowed houses for the reception of lepers existed up and down the country "at the entrance of almost all our towns. The number of these lazar-houses, however great, *was insufficient to accommodate more than a small proportion of those suffering from the disease.*" Many writers seem to judge the increase or decrease of leper-houses as a fair criterion of the increase or decrease of leprosy. But it is not so. Many lepers, without doubt, could not get admittance, and wandered on the high roads. In London it was possible to prevent, in a generally lax manner, the entrance of lepers, and the detention of such, who entered the hospitals.[2] But in the country it was not possible to do so, nor could the lepers be prevented from soliciting alms and mixing at choice with the public. "It was long before this disease ceased to be common amongst the poor in this country. It lingered far beyond the Middle Ages, especially in Cornwall and other places."[3] In this

[1] 'England in the Fifteenth Century,' W. Denton, M.A., 1888, p. 206, *et seq.*

[2] Riley's 'Memorials of London,' p. 384.

[3] Denton, loc. cit.; 'Evelyn's Diary,' p. 150; 'Roy. Coll. Phys. Rep.,' 1867.

view I fully share, but it apparently *began to decline in the beginning of the fourteenth century, or somewhat earlier.*

The commission of Edward VI. recorded a very definite decrease in leprosy all over the country, and cited various examples. Referring to the Ilford Hospital (instituted in the reign of Henry II.), the commissioners declared that, though established for sixteen men, "there is at this day (1547) but one pryest and two pore men," It must not be forgotten that Edward's commission was only an inquiry into the leper *hospitals,* not an inquiry into the progress or otherwise of leprosy. Ilford is a very fair example of the general state of the leper-houses. The lazar-house at Newton Bushell was founded about this time (1540), in the deed of which, its object was recorded as follows: "For the releff of power lazar people whereof grete nomber with that diseas be now infectid of moche people to whom they use to resort and be conversant with all, for lacke of convenyent hospitals in the county of Devon for them." [1]

In 1547 the Herbaldowne Hospital was providing relief for fifteen "brethren" and fifteen "sisters," and out-door relief for as many more (Creighton).

Heutzner, in 1598, travelled through England, and observed in his 'Itinerary': "*Angli laborant frequenter leprâ albâ vulgo dictâ.*" [2] And it is not infrequent to find references to the existence of leprosy as an endemic disease as late as the time of James I,[3] and even down to 1712,[4] 1737,[5] 1786.[4]

"A few cases of indigenous origin have been met with in the British Islands during the present (nineteenth) century," but it is probable that all or most of these were not strictly indigenous or endemic.[6]

It must be borne in mind that these various dates may depend upon an imperfect or incorrect diagnosis. Very much of the diagnosis of leprosy was left to the untrained

[1] Carta, 'Barthol. Episcopi. pro Leprosis, St. M. Magd.,' 402; Camden, 'Leicestershire;' Hokers, MSS., fol. 502, p. 402.

[2] Heutzner, 'Itin.,' p. 156.

[3] Carew, 'Cornwall,' loc. cit.

[4] 'Old Bath Legacies and Wills,' Strode.

[5] Berry's 'Cure of Leprosy' (Bath).

[6] 'Roy. Coll. Phys. Rep.,' 1867, lxxii.

and even uneducated. Diseases far removed from leprosy were doubtless frequently classified with it. Gate porters, policemen, priests, and monks, were frequently the judges in suspected cases. Even nowadays such people would not be able to correctly form an opinion on such matters, nor would it be expected of them. Much less were they able to do so in the ignorance of the Middle Ages. We shall never know exactly what diseases were classified under the term "leprosy," but we do know that they were many, and that many different skin diseases found refuge in the lazar-houses. Some authorities go so far as to say that "lazar-house" was a term equivalent to "poor-house." This is probably not so. There were "poor-houses" in addition to "lazar-houses," and we may feel assured that the lazar-houses were especially the refuges of the leprous. At the same time there can be no doubt that "diseases having no affinity with true leprosy or with one another, have been confounded together by want of precision in their nomenclature. The confusion has been increased by the twofold meaning of the term 'lazaret.' Originally it denoted exclusively an asylum for lepers, but subsequently it was applied to all places for the detention of persons labouring under infectious distempers." [1]

"The distinction between a Bede-house and a *Maladerie* was in some places," says Dr. Cookson, "well observed; the former being for the sick and infirm—the latter for lepers." In the case of Brown's Hospital at Stamford (Lincolnshire), the regulations as compiled in Henry VII's time ordained that "no leper be admitted into the said almshouse lest he should affect his sound fellows.'" Many such regulations were "compiled," but few were systematically enforced.

[1] 'Roy. Coll. Phys. Rep.,' 1867, p. lxxiv.

THE KIND OF LEPROSY IN THE MIDDLE AGES.

Creighton is strongly of the opinion "that leprosy as correctly diagnosed was a disease of Europe and Britain in the Middle Ages,"[1] and with this view Trail and Denton agree. The former says:[2] "It is clear that the medical writers about the beginning of the fourteenth century knew true leprosy when they saw it, and that they described it from actual observation." Simpson believes also that the incurable disease which was known in the lazar-house charters and oldest histories of this country under the same name as on the Continent, and which prevailed here during the same periods as on the Continent, was entirely the same disease as that described by the medical authors of the Middle Ages. His classical and clear statement I will give in full.[3] He states from much given evidence:

"(1) That the leprosy of the Middle Ages, as the disease prevailed upon the continent of Europe, was identical with the Elephantiasis græcorum; and

"(2) That it was for the victims of this specific malady that the numerous leper-houses were established, they alone being the individuals who were intended to be adjudged, separated from the people, and consigned to the lazar-houses ("*judicati*"—"*a populo sequestrandi*"—"*in Malenteria ducendi*").

"(3) Various authors who personally witnessed the leprosy

[1] 'History of Epidemics in Britain,' Chas. Creighton, M.A, M.D., p. 71.
[2] 'Social England,' H. D. Trail, D.C.L.
[3] 'Archæolog. Essays,' vol. ii, p. 71.

of the Middle Ages upon the continent of Europe, in describing it have described a disease having all the most characteristic symptoms of Greek elephantiasis.

"(4) In England, a cutaneous disorder prevailed at the same period bearing the same name, presenting the same chronic incurable character, having its victims subjected to the same civil laws and restrictions, marked (as we know from Gilbert, Gaddesdon, and Glanville's observations and writings) by the same train of nosological symptoms, and hence identical with the Continental disease and with the elephantiasis of the Greeks.

"(5) In Scotland we find a malady having the same similarity in its general date, in its name, in its course, and in the civil regulations regarding it, in its symptoms as they are incidentally described by Henryson in the sixteenth century, identical with the Greek elephantiasis.

"(6) In a part of the country where the disease has continued to prevail down to a later period, the infected, as described by eye-witnesses in the earlier part of the century, presented the most unequivocal signs of the affection alluded to.

"(7) We have high medical evidence (William Thomson) for asserting that the malady was seen in members of a Shetland family in which it had been hereditarily transmitted,—and hence one of the last, if not the very last, Scotch leper was decidedly marked by the true and genuine marks of the Elephantiasis græcorum."

Many other authorities might be mentioned as agreeing with this view. The following will act as confirmation of the general authentic belief that Elephantiasis græcorum (true leprosy) prevailed in England :—Gilbert (1270),[1] John of Gaddesden,[2] Professor of Medicine at Oxford (1307-1325), Rogerius, Rolandus, Ledwich,[3] Vontroil,[4] Chevalier Back,[4] Maitland,[5] Theoderic, Bachuone, Lanfranc (the last three contemporary physicians with Gilbert), Gordon,[6] Guy de

[1] 'Compendium Medicinæ.'
[2] 'Rose Anglica.'
[3] 'Antiquities of Ireland,' 1804.
[4] 'History of London.'
[5] 'Nat. Hist. of Ireland.'
[6] 'De Leprâ.'

Chauliac, Vitalis de Furno, Petrus de Angelata (all of them authorities in the fourteenth century), and they had claimed as fellow-believers men who had lived so long before as Ætius (541), Marcellus, Oribazius (360) and Constantius of Carthage, school of Salerno (1087). In our own times the weight of the greatest authority has also been on the side of the same belief; including Simpson, Wilson, Virchow, Hutchinson, and many others.

Both Willan and Shapter, while agreeing with the general view thus held, are inclined to the idea that a very gross amount of "leprosy" in England was not of this type at all. "In consequence of the general application of the term "leprosy" to the elephantiasis, to the leprosy of the Jews, to the proper scaly lepra (græcorum), and even to other cutaneous affections which have no affinity to either of the diseases just mentioned, almost every person afflicted with any severe eruption or ulceration of the skin was deemed leprous and was received into the lazarettos."[1]

In addition to Sir James Young Simpson's conclusions, I think it is desirable to record very shortly a few of the earliest descriptions of the disease as it occurred in Europe and England and compare them with the most modern views for the diagnosis of leprosy.

The Salernian School of Medicine was undoubtedly the guide to the medical men of the eleventh, twelfth, and thirteenth centuries. Constantius of Carthage, the founder of the School, who flourished in the middle of the eleventh century, divided leprosy into four varieties:—Est autem quadrifaria. Vel enim de corruptione est sanguinis et vocatur *Alopecia;* alia de cholera rubra, et dicitur *Leonina;* alia de cholera nigra, et dicitur *Elephantiasis;* quarta de phlegmatæ provenit (quæ) *Tyria* (apellatur).

Then we come to the descriptions recorded of the disease at the end of the thirteenth and beginning of the fourteenth century, of which three may be taken. Guy de Chauliac records six leading characteristics, viz. rotundity of the eyes and ears; thickening and tuberosity of the eyebrows with falling off of hair; dilatation and disfigurement of the nostrils externally, with stricture of them within and

[1] 'Diseases of the Skin,' Willan, p. 418.

fœtidity of the lips; the voice raucous and nasal; fœtidity of breath and whole person; fixed and horrible satyr-like aspect."

Gilbert made many personal observations of leprosy as it existed around him, and they are recorded ('Compendium Medicinæ'). He divided the disease into five different forms, viz. alopecia, elephantine, leonine, tyrie, and a general form, and drew to a very large extent his own conclusions.

Bernhard Gordon also wrote extensively on the subject,[1] and discoursed on the signs of leprosy as he found it around him. His views are practically the same as those of Guy de Chauliac.

Passing over a long period, during part of which leprosy and syphilis were so widely confused, we may quote a few words from Cullen (1772). "Elephantiasis," he says, "is a contagious disease with (1) the face deformed with tubercles, (2) the skin thick, wrinkled, rough, unctuous and divested of hair, (3) loss of feeling in the extreme joints, and (4) the voice harse and nasal."[2]

At the beginning of the present century Good describes the disease thus: (*a*) Skin thick, livid, rugose, tuberculated, (*b*) insensibility to feeling, (*c*) eyes fierce and staring, (*d*) perspiration highly offensive."[3]

In our own day there have been many descriptions of the pathology and symptoms of the disease.[4] Kaposi sums them up for all practical purposes in the following words: "Lepra is used as the generic term, and Elephantina, Leonina, Tyria and Alopecia are only its varieties. It is characterised by the formation of red and livid spots, smaller and larger hard tubercles of a dark colour, insensitiveness of the skin, shedding and whitening of the hairs, especially the eyebrows, atrophy of the muscles, deformity of the limbs in consequence of contraction of the joints, granular and ulcerative destruction of the phalanges,

[1] 'De Leprâ,' c. xxii, pp. 95, 711.

[2] 'Synopsis Nosologiæ Methodicæ,' p. 369.

[3] 'Physiological System of Medicine,' 1817, pp. 257, 258.

[4] Liveing, Neisser, Babes, Danielssen, Boeck, V. Carter, Cunningham, Hillis, Thin, Rake, and many others.

granular nodules on the mucous membrane of the mouth and pharynx, hoarseness, destruction of the mucous membrane of the nose, and general marasmus."[1]

Surely there can be no doubt that these various descriptions are of one and the same general disease. They differ only in terms of expression, owing to the great changes and advance made in the knowledge of leprosy and to the more accurate scientific diagnosis and description.

Dr. Shapter of Exeter, who wrote in the beginning of the present century, is of opinion that there was a good deal of exaggeration anent the disease. He draws various conclusions which may be culled from various parts of his book. They are as follows :

(1) That leprosy was an established European disease anterior to the Crusades.

(2) That institutions of refuge for the afflicted were numerously provided.

(3) That the lepers themselves were under the especial care of the Church, and that the movement on their behalf was largely an ecclesiastical movement.

(4) That from their very first establishment these institutions were not founded as "separating" houses or houses of pestilential seclusion, but that they were solely the charitable resorts of those afflicted with a peculiarly distressing and loathsome disease. These immense charities were at length administered under great abuses, and afford no accurate ground upon which to calculate the extent or prevalence of the disease.

(5) That from the ignorance and superstition of the Middle Ages, and from the European authors of these early times owing their medical knowledge to the writings of the Arabian physicians and not to their own observations, the common leprosies and cutaneous defœdations were invested with all the horrors of the Elephantiasis græcorum. And thus that the word "leprosy" included many cutaneous diseases similar in character to cutaneous diseases now occurring. Much of the horror entertained with regard to "leprosy" is due to the above mistake ; also to the general

[1] Hebra's 'Diseases of the Skin,' "Lepra," Dr. Kaposi of Vienna, vol. iv, p. 124.

deficiency of medical skill; to the supposed highly contagious nature of the complaint; to the superstitious ignorance of the times, and to the exaggerated histories of the returning Crusaders filling the ears of greedy listeners with tales of dread.[1]

Indeed, so strong was the belief that leprosy was supernatural and beyond all assistance, that in a trial for witchcraft at Edinburgh so late as 1597, a person is actually accused that "she affirmit she could haill leprosie, quhilk the maist expert men in medicine are not abil to do."[2]

With these general conclusions I entirely agree as regards the first four. Respecting the fifth, it does not seem to me that authorities of the Middle Ages were so much under Arabian influence that their accounts of the medical aspects of the leprosy are worthless. And we may, I think, feel assured that the "leprosy" existent in England was for the most part True Leprosy.

[1] 'Leprosy in the Middle Ages,' Shapter, p. 72.

[2] Pitcairn's 'Criminal Trials in Scotland,' vol. ii, p. 29.

LEPROSY AND SYPHILIS.

During the sixteenth century and a little before that time there was much discussion as to whether syphilis was not in reality the offspring of leprosy. Some went so far as to declare that the diseases were one and the same. There can be no doubt that when leprosy disappeared, secondary cases of the new disease—syphilis—were admitted into the leper hospitals (what few then existed) as cases of leprosy or as cases of the *lues venera,* in consequence of the emptiness of the leper hospitals. "When physicians came to be better acquainted with the distinctive characters of syphilis at the time of its wide diffusion in Europe (about 1490—1500) the number of lepers diminished considerably within a very short period. That fact is explained, not by any such sudden extinction of the disease, nor, as some have concluded, by transformation of leprosy into syphilis, but according to the more natural assumption that a correct diagnosis of each disease had taught men to restrict the number of leprous cases within proper limits."[1] There is no doubt, I think, that this is true and that syphilis was common at this period (an "epidemic" of syphilis occurred in England in 1498 and Scotland in 1497), but it does not alter the general fact that even though many diseases—tuberculosis in many forms, smallpox, leucoderma, lichen, eczema, psoriasis, and syphilis—were misdiagnosed as "leprosy,"[2] at the same time Elephantiasis græcorum was

[1] Hirsch, 'Geographical and Historical Pathology.'

[2] Some think *ergotism* was also misdiagnosed as leprosy. This was not so, as the first undoubted case of ergotism did not occur till the eighteenth century (C. Creighton, loc. cit.). *Vide* 'Phil. Trans. Roy. Soc.,' xxxi, 58.

from all authoritative accounts the disease rightly called leprosy and exceedingly prevalent in England during the eleventh, twelfth, and thirteenth centuries.[1] The reason for the belief that syphilis was a form of leprosy was the fact that syphilis followed (chronologically) immediately after leprosy. The evidence that we have in history against such belief is the denial of such interrelation between the two diseases by the contemporary physicians. Also lepers refused to admit syphilitics into the leper-houses.[2] And we may consider that the two diseases were on the whole but little confused with, and had little relation to each other.

[1] *Vide* Bernard, Gilbert, Hunstanton, &c., loc. cit. At the present day some believe that syphilis is intimately related to leprosy, and may be an early stage of the disease. Dr. Fitch believes that "leprosy invariably follows" the introduction of syphilis into virgin races. There can be no doubt that there are pathological similarities between the two diseases, but that is not sufficient evidence to prove that leprosy is a phase of inherited syphilis (Sir W. J. Moore's Theory).

[2] R. Virchow, 'Krankhafte Geschwülste,' pp. 500, 501.

THE

FUNCTION OF THE LEPER HOSPITALS:

WAS SEGREGATION CARRIED OUT?

I HAVE already pointed out that with half-a-dozen exceptions, the houses, pest-houses, lazar-houses, lazarettos, leper "hospitals," were in no strict sense to be described as hospitals. They were ecclesiastical, not medical, institutions; refuges, not places for treatment; palliative, not radical. It is true there were divers laws and regulations enacted, and more or less enforced, with regard to detention of lepers and preventing them obtaining access to the city of London; but that any system of proper segregation existed, I have been able to find absolutely no evidence at all. Indeed, all the evidence points in the other direction. The lepers were allowed to go into the markets and fairs; and friends and wayfarers were constantly allowed to reside in the leper hospitals. The mixed character of the hospitals is well illustrated in the case of Lynn (1145), which provided for twelve brethren or sisters, nine of whom should be whole and three leprous. St. Leonard's, at Lancaster, also provided for nine poor persons, three of whom might be leprous. Even the detection of leprosy was left to the laity and inferior officers, who were almost wholly ignorant of this disease. Undoubtedly the general public had a strong dislike to meeting or communicating with a leper,—partly because of his unsightliness, partly because of superstition,

partly because of supposed infection, &c.; undoubtedly, therefore, the lepers were much shunned, and lived much in solitude,—but that there was in any sense a *strict* separation of the diseased from the healthy, or that the *De Leproso Amovendo*[1] was strictly and constantly enforced, I can find no substantial evidence. But I have found a very large mass of evidence wholly to the contrary. A recent writer states: "The great object (of the leper hospitals) in view was not the cure of leprosy, for then as now leprosy was deemed incurable, but to arrest the spread of it, to prevent the contamination of the sound by contact with the infected."[2] This presupposes at the outset that leprosy *was* infectious or contagious, a point I shall have occasion to refer to later on. And certainly no one can carefully read the detailed accounts of the various leper hospitals in England and feel assured that they acted as "arresters" of the spread of the disease. Unless segregation is carried out strictly and *in toto*, the point and principle of it is obviously lost. I do not doubt that segregation was one of 'the objects in view,' but I can find no proof that it was in any case satisfactorily carried out. It has been pointed out that two or three generations of segregation (like that of the Middle Ages in England), if enforced in India, would practically exterminate the disease of leprosy in that country. If so, why is it that it took six or seven centuries to accomplish that in England? Many authors apparently share the view above expressed that "isolation" and "strict segregation" was carried out rigorously in the leper hospitals, and was the cause of the decline of leprosy.[3] Let me repeat the well-founded conclusion of Shapter (see p. 52) that these institutions were nothing more than "charitable resorts"—and in many cases that were too good a name for them, for it is not difficult to discern the avaricious abuse that went on in connection with these places. With the view of Shapter, Sir James Y. Simpson wholly agrees.[4] Mr. Hutchinson

[1] *Vide* p. 25.

[2] 'Nineteenth Century,' 1884, Agnes Lambert.

[3] C. N. Macnamara, 'Hygiene and Diseases of Warm Climates:' Robson Roose, 'Leprosy;' Munro, 'Ed. Med. Journ.,' 1877; Thin, 'Leprosy,' 1891.

[4] 'Arch. Essays,' vol. ii.

also is of opinion that it is "an utter mistake to believe that efficient segregation was practised."[1]

There is much evidence relative to this question of segregation scattered throughout this paper, and from it as well as from the above we may, I think, safely conclude that the isolation enforced was so slight, irregular, and intermittent, that its effect upon the decline of leprosy is too little to take into account, and that the chief function of the numerous leper hospitals was charitable and protective rather than a strictly medical isolation and segregation.

[1] 'British Medical Journal,' 1890, p. 655.

OBSERVATIONS

ON THE

CAUSE OF THE DECLINE OF LEPROSY AS AN ENDEMIC DISEASE IN ENGLAND.

Up to this point we have been dealing with facts, the chief of which are indisputable. But the cause of leprosy and the cause of its decline and final extinction in England opens a very wide region of history, ancient and modern. Not a little of this is speculative and hypothetical.

In his famous essay on leprosy in this country, Sir J. Y. Simpson has laid it down as a primary axiom that the whole question of the cause of the disease in England in former times must be thoroughly investigated in connection with two other questions, viz.:

(1) The allied physical circumstances of the inhabitants of those countries in which the disease in the same way formerly raged, and—

(2) Of those districts of the world in which it is still prevalent; and thus "by a kind of reasoning by exclusion the exact physical conditions of a people that are capable of originating or of spreading this particular species of disease."

I have endeavoured in my investigation to bear these two points in mind.

PHYSICAL AND SOCIAL CONDITIONS IN ENGLAND DURING THE LEPROSY PERIOD.

At the outset it may be as well to consider something of the physical and social condition of England itself at the time when leprosy was endemic.

The condition of Europe during the Middle Ages is not readily conceived. The last two or three centuries have radically and completely altered the whole life of Europeans, and even down to physical matters, the conditions now are immensely different from what they were then. From the fifth century, when the Empire at length fell under the repeated assaults of the northern invaders, to the tenth century, the finest parts of Europe lay in a state of devastation; little cultivation was practised; all the arts were neglected or lost and the clothing, habitations, and food were alike insufficient and unwholesome. For three centuries more this devastation continued, being largely caused by the incessant wars and invasions that were waged.

In the fourteenth century there were fourteen European plagues, with intervals of about six years between each. In England the food consisted during that time, and later, of much salted provisions, especially in winter, and of a hard black bread, chiefly rye. There was practically no corn, and much of that which was grown was so diseased that it was scarcely usable. The cultivation of vegetables and gardening was not understood or taken up until the sixteenth century.[1] In all the towns of Europe the streets were unpaved and ill-constructed, every sort of filth was permitted to be thrown into the streets and remain

[1] 'History of London,' Northouck, Bk. i, chap. 7.

there; vaults and common sewers were seldom adopted, and the drains ran above ground; the office and duty of scavenger was imperfectly executed or neglected; the supply of water was deficient, and the narrowness of the streets prevented any free circulation of air. In all the large towns, under such circumstances, it is not to be wondered at that pestilence and plague raged every year. The general prevalence of such maladies was also greatly increased by the internal domestic arrangements of the houses, which were also injudiciously placed and overcrowded, and having no cleanliness or ventilation, afforded the most favorable nidus for the propagation of disease. From the thirteenth to the sixteenth century, most of the towns of England and Europe were in the condition above described. The streets of London were filled with common lay-stalls of all manner of filth and garbage, which the people were in vain ordered to remove from their own doors; the sewers, the few which existed, were much more harm than good, and large drains ran above the ground; the access of air into the narrow streets was prevented by the projecting houses, which almost met at the top, and the intervening space below was filled up with enormous sign-boards.[1] In 1349, the streets were so abused with common lay-stalls that a proclamation was made "that no person whatever should presume to lay any dung, guts, garbage, offal, or any other ordure in any street, ditch, river, &c., upon penalty of £20" (Rees). "The homes of the people were wooden or mud houses, small and dirty, without drainage or ventilation;"[2] the floors of earth or clay were covered with rushes, straw, and other rubbish, which were "occasionally renewed; but underneath lay unmolested an ancient collection of beer, grease, fragments of fish, spittle, the excrements of dogs and cats, and everything that is nasty."[3] Close by the door stood "the mixen," a collection of every abomination, streams of filth from which polluted the houses and neighbourhood, including any river at hand.[4]

[1] Rees, 'Cyclopædia.'

[2] Sir J. Fayrer, M.D., K.C.S.I., Presid. Address, VII Congress, 1891.

[3] Letter, Erasmus to Wolsey.

[4] 'Six Centuries of Work and Wages,' Rogers.

In addition to these conditions the people in the towns lived in a crowded state and knew little of decency, cleanliness, and order.

Soap, in the fourteenth and fifteenth centuries, was scarcely used at all, and certainly to the labourer was a luxury he could rarely afford to buy. Hence a life of dirt in consequence. He slept upon heaps of decayed vegetable matter, and yet there were no fresh vegetables to eat. The contents of the gardens were very different from the vegetables we see now; there were perhaps a few cabbages, onions, parsnips, and carrots, and apparently some kind of beet or turnip. The potato had never been heard of (thirteenth). Meat was scarce, and during whole months of the year little beyond salted meat and fish was eaten, much of which had suffered from keeping. Before 1349 labourers frequently received damaged corn instead of wages.[1]

By way of example of the deplorable method of storing food, I may quote from the kitchen accounts of Humphrey, Duke of Buckinghamshire (1443 to 1444). Mention is there made of the purchase and storage of "10 barrels salt herrings, 11 cades fresh herrings, 6 cades sprats, 3379 salt fish, 3060 stock-fish, 6 barrels salt salmon, 1 barrel cod, 1 barrel and 13 salt eels, 1 barrel sturgeons, 12 lampreys, 1 pair of porpoises."[2] In 1466, at the feast to commemorate the instalment of George Nevile as Archbishop of York, 608 pikes and 12 porpoises were used. At a similar ceremony in 1504, when Warham was made Archbishop of Canterbury, the following quantity of fish was used:—300 ling, 600 cod, 7 barrels salted salmon, 40 fresh salmon, 14 barrels white herrings, 20 cades red herrings (600 herrings in each cade), 5 barrels salted sturgeons, 2 barrels salted eels, 600 fresh eels, 8000 whelks, 500 pikes, 400 tenches, 100 carp, 800 bream, 2 barrels salted lampreys, 1400 fresh lampreys, 134 salted congers, 200 great roaches, and a quantity of seals, porpoises, and other fish. This feast occurred, as it is stated, on a "fish day."[3]

These examples, I think it will be agreed, are appreciable

[1] Denton, 'History of the Fifteenth Century,' 206.

[2] 'Compota Domestica; Duke of Buckingham Kitchen Accounts,' 14, 15.

[3] 'Domestic Manners in England in the Middle Ages,' Wright.

evidence of two important oft-disputed facts, viz. that much storage of salt food occurred in Mediæval England, and that even in the Midlands away from the coast a very large amount of fish was eaten.

There is much more evidence to prove the latter, of which I will take two examples. Sir William Dugdale affirms that there was in the Middle Ages a great trade in oysters and other shell-fish at Colchester, which trade also extended far into the Midlands, where stale oysters were much sold.[1] Another writer states that in pre-Norman times in England "various kinds of fish" were eaten throughout the county, but chiefly and most largely, eels. "They used eels," says Turner,[2] "as abundantly as swine." Two grants are mentioned, each yielding 1000 eels, and by another, 2000 were received as an annual rent; 4000 eels were a yearly present from the monks of Ramsay to those of Peterborough. In one charter twenty fishermen are noticed who furnished every year 60,000 eels to the monastery. Eel-dykes are often mentioned in the boundaries of their lands.[3] "Fish," says Wright, "was a great article of consumption in the Middle Ages."[4] Many cases might be quoted where enormous quantities of fish were left as legacies to the poor in certain parishes, especially in East Anglia. In the fourteenth, fifteenth, and sixteenth centuries many laws were made with regard to protecting the fishing interests. A prevalent smuggling system on the shores of the Wash was stopped. It had been customary there for the people on the shores to live by robbing the fish from the boats that landed fish cargo along that coast; and we are assured that large quantities of fish for the Sturbridge and Ely Fairs never got there at all. Much fish had been dried, salted, and secretly stored previously to an Act of Edward III.[4] Dr. Cookson declares that "provisions long salted were a common article of diet from the noble to the peasant. Fish was largely consumed, sometimes pickled, sometimes preserved in a dry state; it was

[1] 'Monasticon Anglicanum,' Sir W. Dugdale.
[2] Sharon Turner, 'Hist. of Anglo-Saxons,' vol. iii, b. vii, c. iii.
[3] 'Domestic Manners in the Middle Ages,' 149.
[4] 31 Edward III, St. 1, c. i, and c. i, ii, iii, *et seq.*

then called 'stock-fish,' because it had to be beaten in a stock, or wooden anvil, with a mallet before it could be employed for culinary purposes."[1]

I add a further note respecting the fish trade of the Middle Ages, as it has been not infrequently stated that there was none of any account. As a matter of fact there was a great deal. Fish was sent, from a number of fishing ports, all over the populated parts of the country (East Anglia, Northampton, Yorks, Derbyshire, Durham, &c.). This trade, which declined very much in the sixteenth century, was due to two causes: (*a*) exportation of fish in much increased quantities;[2] (*b*) the rise in the price of fish which followed the Black Death in 1349.[3]

It is strange—if not significant—that the decline of leprosy and the decline of excessive eating of salt and bad, as well as fresh fish, should occur at the same period. Also that the endemic leprosy areas and the fish areas were largely identical.

So much did fish-eating of all kinds decrease, that two centuries afterwards a number of statutes were made enforcing more frequent fish diet. A curious example of these was one in the time of Elizabeth (1562) compelling the eating of fish on Wednesdays as well as on Saturdays, except to those persons possessing a special licence to eat flesh.[4] So long as there were three dishes of fish to one of flesh, the letter and spirit of the law was being fulfilled. One of the methods for assisting the legal and palatable inclinations of the people in this little matter was a statute forbidding the sale of flesh on fish days; and in order to drive the subject still further home, those who transgressed suffered after their meal the pain of a penalty of £3.[5] Another statute made illegal the selling of fish which was badly salted or putrid;[6] or the selling of meat on fish-days.[7]

[1] Lincoln Topographical Soc., 1841, Cookson.
[2] 27 Elizabeth, c. xv.
[3] 'Industrial Hist. of England,' Gibbins.
[4] 5 Elizabeth, c. v, xi.
[5] 5 Elizabeth, c. v—xii, and xiii.
[6] 23 Elizabeth, c. vii.
[7] 27 Elizabeth, cc. x, xi.

As Mr. Hutchinson has frequently pointed out that for nearly one hundred days in the year only fish *could* be used because of the numerous fasts, so salt fish must have gone practically all over populated England; and it is quite certain (from various laws to the contrary in Edward III's time) that a good deal of storage went on; and doubtless fish was used frequently besides on fast days. It is equally certain, as has been pointed out, that an oyster shell-fish and "stock-fish" trade was carried on between the seaports on the Wash and East Anglian coast and the Midlands.

Fishing came in very much with the Scoto-Saxons, though there was none previously with the Celts.[1]

Salting down the animals for the winter consumption was a very serious expense, for a couple of bushels of salt often cost as much as a sheep. This must have compelled the people to spare salt as much as possible, and it must have been only too common to find the bacon more than rancid, and the ham alive with maggots.[2] White bread was a rare delicacy.

Little wonder, therefore, that "the sediment of the town population in the Middle Ages was a dense slough of stagnant misery, squalor, famine, loathsome disease and dull despair such as the worst slums of London, Liverpool, or Paris know nothing of."[3] It is perfectly obvious that such a life would soon result in disease.

"The whole of London, especially the city, was polluted by the dead and the living. Smallpox and typhus were perpetual epidemics. The deaths in London were greatly in excess of the births" (Rogers).

The absence of vegetable, and insufficiency of ordinary food, the dirty skins, the sleeping at night in the clothes worn during the day, and the total neglect of all hygienic or sanitary laws, made cutaneous diseases frightfully common. This was worst, of course, in the towns, but it was bad also in the villages, for the surrounding uncultivated country was not infrequently covered with marshes and stagnant water. According to Defoe, "one fifteenth part of England

[1] 'Caledonia,' Chalmers, p. 1807.

[2] 'The Coming of the Friars,' Augustus Jessop, D.D., pp. 88, 90.

[3] Ibid.

consisted of unreclaimed marshy land."[1] This was as late as the time of Elizabeth, when various laws were made for reclaiming land in East Anglia, Sussex, Kent, Northamptonshire, and Huntingdon.

During the twelfth and thirteenth centuries the cities had grown not a little outside their gates. In the crowded courts under the walls, or else in the marshes of the river, there herded together masses of men and women neglected and outcast. "Amid those multitudes the foul plague of leprosy stalked like a remorseless demon, and there the Friars from the first sought and found their work. All Franciscan novices were made to undergo a period of training in the leper hospitals."[2]

The terrible scourge of 1349 is supposed to have destroyed "not much less than one half of the population."[3] Rogers also believes that it had the effect of doubling the wages,[4] and of completely changing the farming system in consequence. The modern system of letting was introduced, and the permanent distinction between the farmer and labourer established.[5] But it was not till 1666 that radical changes occurred in London, nearly three hundred years after the first Sanitary Act (1388). In many ways the fire of London was beneficial. The streets were made wider in the new London, the lay-stalls were officially controlled, sign-posts were affixed against the balconies, and did not project over the street as before, the street itself was levelled and paved, and no rubbish might be deposited thereon. The people lived in a less crowded manner, and in 1766 the drains were all covered, scavengers appointed, and a freer use of water exercised.[6]

Concomitant with these conditions we must also remember that the standard of existence and morality was very low. Immorality ran freely wild in the Mediæval world. The whole tone in the reign of William II. was decidedly low,

[1] Sir J. Fayrer, loc. cit.
[2] H. D. Trail, loc. cit.
[3] 'Hist. of Prices,' Rogers, i, p. 60.
[4] Ibid.
[5] Wm. Stubbs, 'Constitutional Hist. of England,' vol. ii.
[6] Rees, 'Cyclopædia.'

and one is forcibly struck with the regulations made in lazar hospitals to prevent any gross immorality going on.[1] It is quite clear, from the statements of Mediæval physicians as well as from the regulations in the leper hospitals, that the disease had, in their opinion, some intimate connection with the prevalent immorality; heredity, as well as contagion, was held responsible. It is quaint to discover that the penalty for immorality in these strictly "segregated" leper hospitals was expulsion!

Gilbert White, in one of his letters,[2] gives various interesting details about the leprosy and diet of the people. He says that the decrease in the disease was due to the "much smaller quantity of salted meat and fish now eaten in these kingdoms, from the use of linen next the skin, from the plenty of better bread, and from the profusion of fruits, roots, legumens, and greens, so common in every family. Three or four centuries before there were any enclosures, sown grasses, field turnips, or field carrots, or hay, all the cattle which had grown fat in the summer and were not killed for winter use were turned out soon after Michaelmas to shift as they could through the dead months, so that no fresh meat could be had in winter or spring. Hence the marvellous accounts of the vast stores[3] of salted flesh found in the larder of the eldest Spencer in the days of Edward II, and even so late in the spring as May 3rd. It was from magazines like these that the turbulent barons supported in idleness their riotous swarms of retainers ready for any disorder or mischief. But our agriculture is now arrived at such a pitch of perfection that our best and fatted meats are killed in the winter, and no man need eat salted flesh, unless he prefers it, that has money to buy fresh. One cause of this distemper might be, no doubt, the quantity of wretched fresh and salt fish consumed by the commonalty at all seasons as well as in Lent, which our poor now would hardly be persuaded to touch.

"The use of linen changes, shirts or shifts, in the room of sordid and filthy woollen, long worn next the skin, is a matter of neatness, and comparatively modern, but must prove a

[1] Freeman, 'Reign of William Rufus,' Appendix, vol. ii, pp. 498, 499.

[2] 'Natural Hist. of Selborne,' Gilbert White, letter xxxvii, 1798.

[3] 600 bacons, 80 beef carcases, 600 muttons.

great means of preventing cutaneous ails. At this very time (1778) woollen instead of linen prevails among the poorer Welch who are subject to foul eruptions. The plenty of good meat and bread that is now found among all ranks of people in the south, instead of that miserable sort which used in the old days to be made of barley or beans, may contribute not a little, sweetening their blood and correcting their juices, for the inhabitants of mountainous districts to this day are still liable to the itch and other cutaneous disorders, from a wretchedness and poverty of diet. As to the products of a garden, every middle-age person of observation may perceive, within his own memory, both in town and country, how vastly the consumption of vegetables is increased. Green stalls in cities now support multitudes in a comfortable state, while gardeners get fortunes. . . . Potatoes have prevailed in this little district, by means of premiums, within these twenty years only, and are much esteemed here by the poor, who would scarce have ventured to taste them in the last reign. Our Saxon ancestors certainly had some sort of cabbage, because they call the month of February "Sprout-cale," but long after their days the cultivation of gardens was little attended to."

Even in 1509, King Henry's Queen, Catharine, could not procure a salad, till Henry sent to the Netherlands and engaged a gardener to come over and raise the necessary articles here.[1] How totally destitute of such diet must the people in general have been at a much later period.

We learn something more of the progress of civilisation from noting the appearance in England of various commodities of necessity or luxury.

Straw was first used for the King's bed in 1242. Fine linen was first made or sold in England ten years later. Gunpowder came in 1320, and the first Sanitary Act was enforced (more or less) sixty years later.

The population of England was, roughly, about three millions in the sixteenth century. Norwich claimed about 6000 people (so that it is not probable or possible that "58,000 people died of the plague at Norwich in 1349").

[1] 'Hist. of London,' Northouck, Bk. 1, c. vii; Nicholas Carlisle, F.R.S., loc. cit.

London only contained 35,000 people, and there was no town in Lancashire worthy of a separate return.[1] At Domesday the population of England was about two and a half millions, mostly in the south and south-east parts of the country. Just exactly 300 years after, it was two millions. At each of the two periods there were only six towns with a population of 5000 or over 5000. The 'Census' (the first proper Census was not till 1801) of the eleventh century was calculated at the compilation of Domesday Book, and is probably fairly correct. The estimation of the population in the fourteenth century was most carefully drawn up by Professor Thorold Rogers ('Industrial and Commercial History of England,' p. 48), on the basis of a poll-tax of 4d. a head on all lay persons over fourteen years of age, which tax was granted by Parliament to Edward III, in the last year of his reign. In both cases there can be little doubt that the calculations were roughly correct. The population was five millions in the sixteenth century (Froude), ten in the seventeenth, and more than eighteen in the eighteenth (Rogers). Printing commenced in the middle of the fifteenth century, and before the close of the Middle Ages (*i. e.* end of fifteenth century) colonisation and discovery had advanced.

The art of gardening was introduced in 1509, just one hundred years after it had been necessary for England to send to the Baltic for corn.

In the sixteenth century there was considerable development in the conditions of life in England. Hops, salads, carrots, turnips, potatoes, tobacco, tea and watches were grown or introduced. The seventeenth century witnessed the rise of science. The eighteenth century saw the marvellous growth of the British Empire (India, &c.). Brindley, Watt, Arkwright, &c., flourished, and the factory system and gas came into use.

Such is a rough and sketchy outline of the conditions of life in England during the leprosy epoch.

[1] 'Industrial and Commercial Hist. of England,' Rogers.

GENERAL PHYSICAL AND SOCIAL CONDITION IN CHINA, INDIA, AND ICELAND.

In a few paragraphs I propose to mention characteristics of other countries where leprosy is now or has been endemic.

First, two or three examples of countries in which leprosy now exists endemically: China, India, and Iceland.

China.[1]—Here is every variety of climate, but the average temperature is lower than in other countries of the same latitude.

The Chinese are an agricultural people, somewhat similar to the Mediæval English, and this has been the case from time immemorial. Comparatively little beef is eaten; not so much because of the prevalence of Buddhism, but because of a feeling of gratitude to the animal most used as a tiller of the soil. Pork is much used; and quantities of excellent fish and shell-fish, (the fishing is mostly done by trained diving cormorants).

Regarding clothing, silk has been used in China from the twenty-third century before Christ, and the people use cotton and linen abundantly. The houses are built of wood or stone, and though not picturesque are serviceable. The streets are narrow, and crowded with people—especially in the south. They are badly drained, and the heat and stench are exceedingly disagreeable to passers-by. Since the feudal times, separation of the sexes till marriage has been a feature of the social life. But polygamy has been a long-standing evil to the nation. Leprosy is legal ground

[1] A. S. Ashmead, M.D., 'Leprosy in China;' Doolittle, 'Social Life of the Chinese;' Prof. Legge, in 'Chambers' Encyclopædia.'

for divorce. There was orderly government in China and selection of best man as ruler two thousand three hundred years before Christ.

Coming now to the consideration of leprosy in China, we learn that it has been existent there from the very earliest times; but a cursory glance at the history of leprosy in the parts of China where it has been prevalent, will at once detect marked similarities between the endemic disease in England and China—*e. g.* the government believe it to be contagious; the people share this belief in theory, but not in practice (just as they did in England), lepers go about and mix with the public. "Nobody thinks of refusing to buy from a leprous huckster; and provisions are bought fearlessly in the store of a leper" (Ashmead). He begs his alms, and in some places they even have the Mediæval much-abused system of Proctors. Even in the matter of leper hospitals there is a marked resemblance to the old English methods. So cogent are the remarks of Doolittle[1] on the leper hospital at Tientsin, that I quote them fully.

"There are two large asylums, or places of refuge and of residence, at Tientsin, for the wretches who are taken with leprosy, located on the outside of the city near the east and west gates. Two or three hundred lepers live at each of these asylums. A certain number at each asylum have a small stipend allotted them regularly from the government. When one of those who receives the government aid dies, his place on the list is supplied by the name of another. It is reported that each leper at the west asylum only receives from 1000 to 1500 cash (about 3s. 4d. and 5s.) per quarter from the Imperial benefaction.

"Each asylum is under the control of a head man, who must reside at the institution, and who is nominally or really one of the lepers. It is the duty of this head man to report at stated times to the district magistrate the number of deaths, accessions, &c., and to manage the general affairs of the asylum. Matters which he cannot settle must be promptly reported to the proper magistrate. He has great power over the unfortunates connected with his establishment. The rules are very rigid, and it is said that if one

[1] 'Social Life of the Chinese,' pp. 524—527.

of the inmates should manifest a decidedly insubordinate disposition, and repeatedly and wilfully violate them, and the head man should beat him so severely as to result in death, no notice would be taken of it by the authorities. These head men have the reputation of being rich, and of having money at interest.

"Different sections of the asylum are allotted to the different sexes. Husbands and wives are, however, allowed to live together. In case of their husbands being taken with the leprosy and required to live in the asylum, some wives prefer to accompany them rather than live at their own houses. These asylums present the appearance of a walled village, having streets, a few small shops, and a school. A wealthy leper can hire a respectable house within the compound, and live well by paying extra for what he enjoys. Lepers at the asylums may marry and raise families. It is a popular saying that if either a man or his wife has the disease, the other party will not take it; and that a male leper cannot impart the leprosy to a woman, while a female leper can give the leprosy to a man who is not her husband. . . . .

"When one breaks out with the leprosy, no matter what his social standing or his wealth, established custom requires that he should be conveyed to one of these asylums, have his name entered upon the list of inmates, and remain there for a longer or shorter time. His neighbours, if they know it, will not allow a person taken with the leprosy to remain at his home. On entering an asylum, the leper must give to the head man a sum of ready money, regulated somewhat by the wealth of the individual. In case of a poor man becoming leprous, his neighbours are glad to help him in raising the sum demanded by the head man in order to facilitate his departure. The sum demanded by the head man as an entrance fee is said to vary from a few to thirty or forty dollars.

"Sometimes rich and influential families endeavour to prevent a knowledge of the circumstances becoming public, in case a relative is taken with the leprosy, by confining him at home, and keeping away from him those who they think would communicate the news to the street lepers or their head

man. Should the neighbours become aware of the fact, they generally would inform the street lepers, who would report to the chief; and the neighbours themselves would insist on the observance of the established custom. When the fact becomes known, the matter is sometimes, though very rarely, compromised with the head leper by giving him a large bribe. Some twenty years ago a very rich man, living in the suburbs of this city, having been attacked with this disease, secretly bribed the head man by a present of 1000 taels of silver to allow him to remain in his own house. In this instance the family was so influential and respected that the neighbours did not insist on his entering the asylum as a poor man would have been obliged to do. He remained at home, and subsequently died of the leprosy.

"The poor leper leads an unhappy and hopeless life. Obliged to beg in the streets in order to supplement the insufficiency of the Imperial benefaction, in health his lot is a most unenviable one, and sickness would seem to render his misery complete. A physician is connected with each of the asylums, residing without the compound. But money is requisite to secure the attention and medicines which a sick leper needs. At death the corpse is burned, not buried. Fire is believed to destroy the insects which are supposed to cause the leprosy, and which, unless the corpse was burned, might naturally be expected to infest the neighbourhood and affect travellers. . . . .

"We were told that out of 400 inmates of the asylum, one fourth were females. We saw thirty or forty children of both sexes who were affirmed to have been born there. A number of the larger boys and girls were out begging. We were informed in reply to our inquiries, that sometimes the leprosy did not make its appearance on the children of leprous parents in early life, and that the relatives of the children living outside the asylum sometimes took home to bring up those who seemed to be unaffected by the disease."

India.[1]—The most excellent and almost exhaustive

[1] India, 'Imperial Gazetteer,' Sir W. W. Hunter; 'Chambers' Encyclopædia,' Sir R. Temple, and other works of his; various Histories of India; 'Fauna of British India,' Blandford.

Report of the Leprosy Commissioners leaves but little to add. But I will state shortly a few notes relative to the matter under discussion :—The climate runs to the extreme in both directions—a torrid zone and a cold zone; in some parts very dry, in others (Bengal, Behar, &c.) very damp.

One third of the country is cultivated or grazed. "As a point of comparison a native has hardly half the strength or nervous force of a European, perhaps not more than one third; his work comparatively would be in the same proportion. In consequence of this, and of the cheapness of living, his wages are not more than one sixth of the British rate" (Temple). The mass of the people are monogamist.

The Empire is over-populated, and a large percentage of the agricultural population is not sufficiently employed. "The cultivation of the soil forms the occupation of the Indian people in a sense which it is difficult to realise in England" (Hunter). It has been estimated that 90 per cent. of the rural population live by tillage of the soil. "The natural drainage (of Bengal, *i. e.* the chief leprous district) is extremely deficient" (Blandford). "Insanitary conditions abound throughout Bengal. The dwellings of the poor, sessile on damp ground, are crowded, and if perchance clean within, are surrounded by dirt heaps and dirt pools. Clothing is deficient, often dirty" (Blandford). The same may be said for Rungpore, another leprous district. "The masses (of India) are poor, and live in defective hygienic conditions, far below the level of the Western European nations, and apparently have lived in such surroundings for centuries."[1] "In the smaller towns and villages little or no attempt at organising conservancy arrangements are made."[2] To take Bengal as an example, the soil is damp and marshy, and filthy tanks, ponds, pools, and wells (the reservoirs of the usable water) abound in every village.[3] Overcrowding, exposure to hardships, ill-ventilation, filthy dwellings, water-pollution, unsatisfactory

[1] 'Leprosy Commission Report,' 1893, p. 98.

[2] Ibid., p. 300, *et seq.*

[3] 'Medical Reporter of Calcutta,' 1894, Dr. Judunah Ganguli.

drainage, and personal uncleanliness seem to be the general rule.[1]

Indeed, the account of the deplorable state of affairs as regards public health in some parts of India given by Surgeon-Major Patrick Hehir seems almost incredible,[2] and one can only express the hope that the last six years have seen considerable improvement. Dr. Roy[3] believes that Burdwan (the area of endemic leprosy and fever) is unhealthy because of (*a*) the dampness and marshiness of the soil; (*b*) the rise of the ground water; (*c*) the unproductiveness of the land; this last being due to the fact that inundations throw up large quantities of sand, which lies as a new stratum on the surface of the soil. According to Pettenkofer, the chief mischief arising from the alteration in the ground water is not so much its high level as its extensive and frequent fluctuations. Sir James Annesley[4] and Dr. Temple Wright[5] believed much of the unhealthiness of the soil was due to animal remains and animal substances in a state of decomposition, mingled with the products resulting from the decay of vegetable matter. However that may be, there can be no doubt at all that the conditions of soil in India are as unfavorable to the maintenance of the public health as the soil was in mediæval England.

Conservancy is advanced and comparatively satisfactory in the large towns, but much the reverse in the villages and country districts.[6] The drinking-water is frequently impure and inadequate to the needs.[7]

The ordinary diet of the natives of India is rice. The poor eat it with herbs gathered out of the fields; the middle classes eat it with split peas, greens, fish, &c. The rich add spices, potatoes, cabbages, cucumbers, and other fruits and vegetables, frequently fried in clarified butter.[8]

[1] 'Lep. Com. Rep.,' 1893, p. 300, *et seq.*

[2] 'Indian Medical Gazette,' November, 1889, Patrick Hehir, M.D., D.P.H.; also see 'Brit. Med. Journ.,' Aug. 3rd, 1895, p. 287; Ernest Hart, D.C.L.

[3] 'Epidemic Fever in Bengal,' G. C. Roy, M.D.

[4] 'Researches into Diseases of India,' Sir J. Annesley, F.R.C.S., F.R.S.

[5] 'Indian Medical Record,' June, 1894, R. T. Wright, M.D., F.R.C.S.

[6] 'Report Sanitary Measures in India,' 1892, 167.

[7] 'Rep. Sanit. Meas. India,' 1887–8; Indian Fam. Comm. Rep.,' 108.

[8] 'Indian Medical Record,' 1894.

As regards fish, much is cured by the natives for their own or European consumption. The fishing in the streams is good, but in the rivers of the champaign the fish, though abundant in quantity, is not esteemed for quality (Blandford). "Both sea and fresh-water fish are largely consumed wherever they can be caught. Dried fish is used all round the coast, especially in the Madras Presidency and Burma. In the latter country dried fish more or less in a state of decomposition is almost universally eaten, but in small quantities, and more as a condiment than as a food" ('Lep. Com. Rep.,' 1893, p. 308). As a matter of fact, although much has been said to the contrary, fish is eaten by a very large proportion of the Indian people. Along the coast it is consumed habitually except by a small minority; "all up the larger rivers fish is found in every market, over two and a half millions of people live by the provision of this article of food, and probably another half-million should be added from amongst the boatmen."[1] ('The Indian Famine Commission Report,' 1880, states the same.) Dr. Vincent Richards held the opinion that in Bengal (where leprosy was most prevalent) no fish could be procured;[2] but Dr. Loos, writing in 1893, states that "all the waters of Bengal abound in fish, and this forms the main article of diet;"[3] and of this same district (the delta of the Ganges and Brahmapootra) Sir James Caird says, "The rivers here swarm with fish, which must be salted to preserve them for transport, but the cost of salt is three times that of fish."[4] Further evidence could be produced[5] to show that a fish diet in India, inland or on the coast, is not a rare diet, but enough has been said.

Regarding leprosy in India, very much the same general remarks apply as for China. Leprosy has been existent in India for at least 3000 years. In the earliest times it was called Kushtha. Many centuries before Christ (exact date

[1] 'Third Decennial Rep.,' 1892, p. 426.

[2] 'Ind. Med. Gazette,' 1889.

[3] 'Ceylon Med. Journ.,' "Leprosy in India," Jas. Loos, M.D., 1893.

[4] 'India, Land and People,' Sir Jas. Caird, K.C.B., F.R.S.

[5] 'Roy. Coll. of Phys. Report,' 1867, lxvii; 'India in 1880,' Sir Richard Temple, G.C.S.I., &c.; 'Leprosy Commission Report,' 1893, p. 308; 'Climate and Diseases of British India,' 1880, p. 209.

unknown) Atreya refers to the seven varieties of Kushtha. There can be no doubt that leprosy was common in India 600 years before Christ (Susruta). Some writers believed it had its source in China and spread eastwards, others believed it came from Thibet, and others again from Egypt (Lucretius). The probability is that the disease has been indigenous and endemic in certain parts of India from time immemorial. And even the scanty records which are extant deal more with the disease as a religious curse, or as a fit opportunity for benevolence, than from a scientific standpoint. The first authentic records of the disease begin with the present century. This is largely owing to the lack of chronological reference to the disease, and also to the fact that until a census was taken exact figures and facts were not obtainable. It is estimated that there are in India, at the present time, 100,000 lepers.[1] There are a number of hospitals set apart for them, where they are well fed and cared for—much better than in China or mediæval England. There is no compulsory detention of lepers in these asylums. Some of them are semi-religious, and in some medical skill is obtainable, and in others a medical man resides. Some are situated in the middle of the bazaar, surrounded by all the other houses; others are situated outside the city. At Subathu and other places lepers are "allowed to go outside the asylum on certain days of the week," and "in addition to lepers, other patients are received from charity. In more than one case the hospital lepers were engaged in selling food in the bazaar.[2]

Iceland[3] is more than a third larger than Scotland; a table-land about 2000 feet high.

The climate of the south of Iceland is like that of the north of Scotland—wet, and colder. In the north of the island the climate is drier, and colder still.

The only cereal is the metur (a kind of wild oats). Turnips, carrots, cabbages, and potatoes are now culti-

[1] 'Lep. Com. Rep.,' p. 53.

[2] Ibid., pp. 9—35.

[3] Jón A. Hjaltalin, 'Chambers' Encyclopædia;' von Troil, 'Letters on Iceland' (1772); 'Journal of Dermatology,' Ehlers of Copenhagen, 1894; "Iceland," Dr. E. Henderson, 'Quarterly Review,' 1818.

vated to some extent. Ponies, sheep, and dogs are exported to Scotland. "The sea around the coast is very rich in fish, especially cod and herrings; the cod fisheries have been carried on a long time by the Icelanders" (Hjaltalin). "Their continual occupation is fishing; they are night and day exposed to wet and cold, frequently fed upon corrupted rotten fish, fish livers and roe, fat and train of whale and sea-dogs, as likewise congealed and stale sour milk; they often wear wet clothes, and are commonly exposed to all the hardships of poverty" (Vontroil). Their houses and villages are small, ill-drained, and crowded. "The diet of the Icelanders consisting almost solely of animal food, chiefly fish, and the want of cleanliness in their habits, produce cutaneous diseases under their worst forms and render leprosy common; nine-tenths of them know not the luxury of bread or vegetables" (Henderson).

As to leprosy, it would seem that it first became common in the twelfth century, and still exists there. In 1555 the disease was so prevalent that the government decided to build hospitals; four were constructed about 100 years later. The spread of the disease was checked by epidemic diseases which occasionally swept over the island. A small-pox epidemic, in 1707, "killed 18,000 persons, including nearly all the lepers alive at that time" (Ehlers). There are now (1894) 141 lepers in Iceland.[1] In the beginning of the present century (1800–1837) the yearly average mortality was 19. Leprosy is at the present time decreasing in Iceland. (Ehlers states that it is increasing.) There has been no segregation, no isolation, no treatment. Its zenith was probably in the sixteenth or seventeenth century. The present population is about 70,000.

As an example of a country where leprosy has been, and is now almost or quite extinct, we may take *New Zealand*. The climate of New Zealand is one of the healthiest in the world (death-rate 9·04 per 1000), the average temperature equable. The white population is 626,000, besides 41,000 Maoris. The date of the Maorian emigration to New Zealand is unknown. In Cook's time they numbered 100,000.

[1] 'La Semaine médicale,' Nov., 1894 (Ehlers).

CONCLUSIONS AND APPLICATIONS OF THE FOREGOING.

Let these few sentences on these three leprous countries suffice.

Now here we have four different peoples, viz. :

Mediæval England .	(tenth to fifteenth centuries).
China . . .	as at present.
India . . .	„ „
Iceland . .	„ „

Climate.—All four countries are widely different ; yet the disease attacks all regions—cold, temperate, torrid.

Physical conditions.—All vary ; the disease exists on mountains, table-lands, plains, and valleys ; no generalisation can be made. England (Mediæval) was probably as damp and marshy as Iceland is now, and it would seem that in India, " the smallest proportion of lepers are found in the driest areas." [1] That is quite my view in regard to England, *e. g.* Norfolk, Suffolk, Essex, Kent, Cornwall, Cambridgeshire were the leper areas, and they were undoubtedly the damp parts of England. " Of course it is not maintained that the degrees of the climate is the sole or even chief factor in the numerical distribution of the disease, yet it must always remain a significant and suggestive fact that the leper ratios (in England, India, China, and Iceland) vary inversely with the degrees of the climate." [2]

Density of population.—It seems to me that in some measure the more crowded the population the more does

[1] 'Leprosy Com. Rep.,' 1893, p. 58.

[2] Ibid.

leprosy flourish. All these four countries have crowded populations. Leprosy was more common in the cities in England than elsewhere. So also in Iceland, where it is almost limited to the more thickly populated south coast. The 'Leprosy Commission Report,' 1893, states that leprosy has not increased in India in proportion to increase of population since 1881, and concludes that therefore the density of population has no effect on the spread of leprosy *per se*. It would be very serious if it did, for at the nineteenth century rate of increase of population, leprosy would now be the most prevalent disease.

As regards *agriculture*, all four countries are similar, though they differ in degree. Tillage of the soil has been the chief employment in three out of the four, and the fourth, Iceland, from its insular position has reaped the harvest of the sea. Agriculture of itself is not likely to cause disease.

Respecting *social conditions*—poverty, sanitation, diet, &c.—we have at least some remarkably common features. The poverty is in all four extreme, the sanitation little or nothing, the diet insufficient.

It has surely been amply proved, here and elsewhere, that this is the only common feature in all leprous areas all over the world, viz. what I have classed under "social conditions."

On the question of the *vera causa* of leprosy, I may quote Neisser,[1] whose propositions have the general acceptance of scientific men of the present day, viz. :

1. Leprosy is a pure bacterial disease produced by a specific bacillus.[2]

2. These bacilli are introduced into the organism either as such, or more probably as spores, and remain during a period of incubation of varying duration.

3. From the parts of the body in which the spores have been deposited, invasion of the system takes place.

Granting the specific cause of the disease to be, and always to have been, bacillary, it follows that the spread and decline of the disease in England had a definite and exact

[1] 'Bacteria in Relation to Disease,' New Sydenham Society.

[2] The *Bacillus lepræ*, Hansen, 1874.

relation to conditions which favoured or prohibited the introduction or action of the *Bacillus lepræ*.

The following modes of introduction are open to us :

1. By touch through an *unbroken* surface of skin = Contagion.

2. By introduction of the specific poison through a broken surface of skin = Inoculation.

3. By actual fœtal transmission = Pure heredity.

4. By air = infectious
5. By food = dietetic
} = Communicable.

Applying these possibilities to leprosy in England, one may say :

1. The whole weight of historic evidence is opposed to the supposition that contagion was the cause of the spread of the disease, and that segregation was therefore the cause of its decline. It is true that the people believed, in a rough and general way, that the disease *was* contagious ; it is equally true that many medical and other authorities declared it to be contagious.

" The leprosy is not infectious (some say), neither is it ever communicated by carnal copulation. But surely whoever looks into the history of the distemper, will find that the ancients had quite another notion of it ; Ætius (Lib. lv, i, 120) expressly says it is contagious, and upon this very account thinks it unsafe to go near a leper."

Avicenna (Lib. lv, 3, 3) tells us "that the very air is corrupted as it is in the plague or smallpox, and if contagion can be propagated this way, *i. e.* by medium of the atmosphere, in a leprosy, how much more active must the venom be in a close and immediate contact."[1]

In a certain restricted sense every bacillary disease is " contagious," but the point is not the abstract theory of contagion, but as to whether or not the disease *was spread in England by contagion*, and its sequel, viz. whether segregation was the cause of its decline. If the disease was spread by contagion, how was it, considering the opportunities, that it spread so little ? There can, I think, be no doubt that it never assumed a greater frequency than

[1] ' History of Physic from time of Galen to the Sixteenth Century,' by J. Friend, M.D., 1758.

40 per 10,000; yet, as has been proved, the lepers mixed with the public, and healthy paupers lived in many cases with the lepers.

This is not the place to enter into a full discussion for and against contagion, but it may be taken for granted that contagion is not a chief cause of the propagation of leprosy in modern times.[1] In China, India, and Iceland the disease has not spread at such a rate or proportion as to make it the least probable that contagion has caused the spread. Indeed, the evidence from the three different countries favours a *decrease* in the leper population, although in not one of the three countries is segregation enforced. Some writers argue that Norway is proof that segregation causes decline, and that therefore contagion spreads the disease. It is interesting to discover that so little and so irregular is the "segregation" in Norway, that in 1885, out of a registered leper population of 1377, only 522 were in hospital at all, *i. e.* not nearly half. In 1890, out of 960 lepers (484 men, 476 women), 507 were in leper establishments.

Another example: at Aqua di Dios, the leper village in Columbia, containing 520 lepers (one third of the population) they live in intimacy and mix freely with healthy people, yet there is no spread of the disease. And many other examples might be adduced. On the other hand, it is easy to mention places where it would appear that contagion played a large part in spreading the disease. But in these cases I believe it will be found that the diet and mode of life are the responsible agents. Be that as it may, I feel confident that the whole mass of historial evidence regarding leprosy in England will support the statement that any spread of the disease in the British Islands in the Middle Ages was not chiefly caused by contagion. If that were a chief cause "we should expect a rapid increase all over the world, for segregation is not absolute anywhere."[2]

[1] Flügge (Leipsic); Virchow ('Krankhafte Geschwülste,' vol. ii, p. 507); 'Times of India,' Nov. 18th, 1890; 'Lep. Com. Rep.,' 1893; 'R. C. Phys. Rep.,' 1867; Erasmus Wilson, 'Lancet,' 1856; Hutchinson, 'Brit. Med. Journ.,' 1889; von Troil; Chevalier Back; Harrebar; Fitch (Molokai); Olavide (Madrid); Ross (Cape).

[2] 'Trinidad Leper Asylum Report,' 1892, Bevan Rake.

2. There can, it seems, be no doubt at all that *inoculation* is possible in the abstract. Practically, inoculation has failed,[1] and we may be absolutely certain that the disease does *not spread through a nation* by inoculation. Upon this point I may not unsuitably quote Mr. Hutchinson. "There was a time," he says, "prior to Hansen's discovery of the bacillus, in which I was inclined to call leprosy 'fish-eaters' gout,' but I should now prefer to name it 'fish-eaters' lupus,' or, perhaps better, 'fish-eaters' tuberculosis.' The differences between the bacillus of leprosy and that of tuberculosis are, although definite, very slight, and may possibly be only acquired and temporary. It is well known tubercular affections of the lungs are a common cause of death in lepers. We must not rely too confidently on the permanent specificity of species in bacilli . . . . Mr. C. Macnamara disavows any belief in aërial infection, but says that it is necessary that the discharge from a leper sore should *enter the blood* of the healthy person. The question, however, is *how* does it get into the blood. Obviously Mr. Macnamara presupposes a local sore, but I repeat neither he, nor anyone else, has ever observed such." ('Brit. Med. Journ.,' 1890.)

3. *Fœtal transmission, or true heredity.*—Bacillary transmission in the maternal blood in this manner is unknown.

4. *Communicability:* by air = *infectious;* by food = *dietetic.*

By air = *infectious.*—There can be no doubt that the *Bacillus lepræ* has frequently been breathed into the respiratory tract. Of course it is impossible to make any exact statement historically with regard to such a method of propagation; it is equally certain that one can find scores of examples of nurses, physicians, and attendants upon lepers, who must have inspired leprous-infected air and yet have not suffered from the disease,[2] from which it may be argued

[1] 'Lep. Com. Rep.,' 1893, Appendix, p. 432, *et seq.*

[2] *E. g.* physicians in Norway leper hospitals who have never taken the disease; or the nine nurses on Sheldrake Island, at the mouth of St. Lawrence River, who lived in the same lazaretto with a number of lepers, washing their ulcers and caring for them as long as life lasts, and have been at it for twenty-one years, while not a single case has contracted the disease (Fitch).

(*a*) that the lepra bacillus never gained access to the respiratory tract, or (*b*) that, having gained access, the tissues were too healthy and resistent for its growth. In the former position the idea of spread by infection falls to the ground. The latter position (immunity, diathesis, &c.) will be referred to habit.

Dietetics.—This is the only possible active cause left by the elimination and exclusion of the others. (Questions of sanitation, poverty, dampness, over-crowding, will be referred to later; not one or all can by any possibility be an active cause if the previous propositions, relating to contagion and infection, are valid.)

Larry ascribes the leprosy from which the French suffered in Egypt to the unwholesome character of the pork.[1] Forrestus, Plater, and Raymond believed the leprosy of the Middle Ages in England was due to the salt, putrid, indigestible food which was eaten; and the frequent scarcity of even that, owing to the disorder of the times.[2]

"To the change from the use of salted, to that of fresh meat, joined to the advantage of vegetable productions now common throughout the year, is principally to be ascribed the almost total extirpation of the leprosy, which formerly made such dreadful havoc."[3] He then goes on to add that linen and other comforts elevated the whole social life of the community, and contributed towards the expulsion of leprosy. "The general history of civilization teaches us that skin diseases were very prevalent, and that leper-houses were ordinary institutions in all the countries of Europe as long as the lower classes continued impoverished, ill-fed, and ill-clothed. Referring to the history of our own country, the age of the Plantagenets and Tudors presented similar scenes, which most probably originated in like causes, and mainly in a deficiency and very irregular supply of a mixed diet of fresh animal and vegetable food."[4]

Exactly the same view was promulgated by the Royal College of Physicians in 1867. "The experience of the past appears

[1] Willan, 'Cutaneous Diseases,' p. 42. [2] Rees, 'Cyclopædia.'

[3] 'Historical Account of the Commission to Inquire into Charities,' N. Carlisle, F.R.S., 1828.

[4] 'Navy Report,' W. R. E. Smart, M.D., R.N.

to point in an unmistakable manner to an improved diet as one of the principal factors in its (leprosy) gradual decline, and eventual cessation in all parts of Europe. During the Middle Ages, and down to within the last one hundred and fifty years, the food of the mass of the people was generally unwholesome and unnutritious. The scarcity of fresh meat and the ordinary consumption of highly salted meats, scanty supply of vegetables and fruits, and the inferior and often unsound character of the bread in common use, together with extremely filthy habits, could not fail to act injuriously upon the general health, and predispose them to endemic chronic maladies as well as to the occasional ravages of epidemic disease. It seems indisputable that as the agricultural and horticultural condition advanced, and the diet of the working class was bettered by the more frequent and abundant use of fresh animal and vegetable aliments, and of more wholesome cereals, leprosy became less and less common, until it almost altogether disappeared, except in scattered and occasional instances."[1] And again :—"The food of the class chiefly affected with leprosy is almost invariably described as being poor, unnutritious, generally unwholesome, and often insufficient in quantity, and in the reports sent in from all over the world, the frequent or constant use of fish, much salted and often tainted or semi-putrid, is perhaps more frequently referred to as a cause of the disease, than that of any other other article of food."

"In Ireland, too, notwithstanding the frequent destitution of the people in many districts, the general cessation of the malady since the seventeenth century seemed to show that mere poverty of food, provided this be fresh and wholesome, is insufficient to produce or to perpetuate the disease."[2] Villannova asserted that leprosy was provoked by unnatural food, and believed that was the reason of its prevalence among the French and Burgundese.[3]

Evidence is also forthcoming from different quarters of the British Islands, to the dietetic causation of endemic

[1] 'Roy. Coll. Phys. Rep.,' 1867.
[2] Ibid., p. 75.
[3] Villannova, 'Breviarii,' Lib. II, c. lii.

leprosy. In St. Kilda it was "ascribed to their gross feeding, and that on those fat fowls, as the Fulmar and Solan geese ; the latter of which they keep for a whole year without any salt or pepper to preserve them."[1] Uncooked meat, and "other gross aliments," are said to have caused the "very common" leprosy in Ireland.[2] "The prevailing notion," says Polwhele, speaking for Cornwall, "is that leprosy was generated by eating salmon too frequently, and at unseasonable times. That our forefathers thought so is evident from covenants which I have seen in this country and in Devon, stipulating that no apprentice or servant shall be obliged to dine on salmon more than once or twice a week. And we are told that, in consequence of a due abstinence from salmon, leper-houses were no longer necessary."[3] The disease, we are told, was due especially to the liver of the fish being not well prepared.[4] Speaking of Cornwall only about one hundred and fifty years ago, an anonymous writer to the 'St. James's Chronicle' says:— "The labourers bring up their families with only potatoes or turnips, or leeks rolled up in black barley crust, baked under the ashes, with now and then a little milk. Perhaps they do not take a bit of flesh meat in three months."

An interesting analogy with leprosy is to be found in the *pellagra* in Italy, a disease caused by bread-eating, from bad or damaged maize. "It is in pellagra," says Dr. Creighton, "that we find the key to the ancient problem of leprosy. The two diseases are closely allied, . . . and may be reasonably suspected of having analogous causes. The most general expression (dietetically) for leprosy, is a semi-putrid and toxic character of animal food, just as for the pellagra it is a semi-putrid or toxic character of bread."[5]

The view that diet is one of the chief causes of the spread of leprosy is not by any means a new idea. Avicen thought that ill-cooked or unhealthy cow-flesh engendered leprosy,[6]

[1] 'Voyage to St. Kilda,' Martin, 1793, p. 41.
[2] Ledwich, 'Antiquities of Ireland,' p. 370.
[3] Polwhele, 'Hist. of Cornwall,' 1806, p. 88.
[4] Nichols, 'Leicestershire,' vol. ii, pt. 1, p. 272.
[5] 'Epidemics in Britain,' Creighton, vol. i.
[6] 'Regimen Sanitas Salerni,' 1649.

and in this old book not a few references are made to the effect of diet upon the disease. Debe put down the prevalence of the disease in the Faröe Islands to the food of the poorer people being half-rotten flesh or fish.[1] Leprosy was prevalent in the Faröes when it was extinct in Great Britain. "We learn," says Dr. Hjort,[2] "from the Faröes, that the disease there has diminished, and is now almost unknown, since the great sea-fishings were relinquished, and more attention has been paid to agriculture." It was believed in many parts of England that salmon was responsible for the disease.[3] Indeed, for centuries in England the common opinion has ascribed to food the chief place amongst etiological factors;[4] and the increased use of vegetables and good food as the active cause in the decline.

Some interesting evidence relating to the effect of diet upon the disease is obtainable from several foreign quarters.

Iceland.—Here the disease, in the opinion of various writers, first appeared "not so much owing to the climate as to the manner of life and diet." "Since fishing has declined among the inhabitants of the islands of Ferro, and the inhabitants have cultivated corn and live upon other food, instead of whale flesh and bacon, the elephantiasis has entirely ceased among them" (Peterson[5]). Banks,[6] Vontroil,[7] Holland,[8] Schleisner,[9] share the same view, and believe that "since fruits and vegetables have become fashionable," leprosy has greatly diminished in Iceland.[10] "It is probable," conclude Drs. Ihre and Bach,[11] "that the elephantiasis quitted southern countries from similar causes, and have on the contrary maintained themselves where a sufficient quantity of bread cannot be provided for the natives and where the lower sort of people do not eat any vegetable."

[1] Debe, 'Account of Faröe Island,' 1676.
[2] Liveing, Gulstonian Lectures, 1873.
[3] Muffet, 1655.
[4] 'Chambers' Encyclopædia,' Willis and others.
[5] 'Letters on Iceland,' Banks.
[6] Ibid. [7] Ibid.
[8] Sir Geo. Mackenzie, 'Travels,' 1812.
[9] 'Roy. Coll. Phys. Rep.,' 1867, p. xliii.
[10] Sir J. Pringle, 'Observations of the Diseases of an Army.'
[11] 'Letters on Iceland,' Banks

New Zealand.—"When the English first began to colonize New Zealand they found leprosy prevalent amongst the natives. In a few isolated cases English colonists themselves became the subjects of it. Now, as is well proven by its fauna, &c., New Zealand had for long ages been separated from all intercourse with other parts of the world. Its diseases were therefore its own. Its natives were living on very restricted supplies of food. They had no quadrupeds, and but few edible vegetables. They lived near the sea-shore, and very largely on what the sea produced. The English introduced corn, sheep and cattle, and Maories took to farming, went to live inland, and to a large extent abandoned fish for mutton and Indian corn. The result had been, that without the slightest attempt at isolation, leprosy had within quite a short period almost wholly disappeared.

"As regards the Englishmen who became lepers (very few indeed) it is probable that they got it from eating the same food as the Maories, and not from contagion. It did not spread in their families, nor did their children inherit it."[1] In 1890 there were believed to be no cases of leprosy in New Zealand. Here is very conclusive evidence as to the influence of diet, and it is confirmed by Dr. Myles,[2] who states, that even so far back as the time of Captain Cook, leprosy prevailed in New Zealand, but only on the shores of an inland lake where fish diet was used, and nowhere else.

Japan.—Quite recently a gentleman well acquainted with Japan, speaking of the diet, quite apart from any thoughts of leprosy, said, "The seas round Japan as well as its rivers swarm with innumerable fish of the most varied kinds, and the diet of the people, especially the lower orders, largely consists of fish, often raw. Neither sheep nor cattle thrive in Japan, and such as there are in the country are almost entirely for the use of the European community." It is so well known that leprosy exists extensively in Japan that it is hardly necessary to enter into the matter fully. Only a few months ago considerable effort was being made in Japan to procure further housing for the lepers.

[1] Abtheilung xvi, 'Med. Geog. und Klimat.,' Hutchinson.

[2] Roy. Acad. Med., Dublin, 1889.

One more example may be taken, viz.:

The Sandwich Islands.—And here again I must quote from Mr. Hutchinson, who said:—"In all probability the lepra bacillus or its representative was always and invariably received into the human body in connection with fish. It was true that as yet the bacillus had not been found in fish, but on this point we must not be discouraged, but persevere. No doubt it would be found. Probably it is not very common. If it were so, leprosy would prevail far more widely than it does.

"Although he had said that he believed that leprosy was not new to the Sandwich Islands, but had always been present, he was quite prepared to admit that there had been of late years, a very remarkable increase. He explained that by the immigration of Chinese, who, wherever they went, became fishermen, food-providers, and cooks, for the rest of the community. An eighth of the population of the Sandwich Islands were at the present time Chinese. No doubt they had taught the natives to eat fish in novel forms. This was the explanation which he had suggested ever since the Sandwich Islands outbreak had been under discussion. He had been delighted to have it confirmed by what Dr. Arning had told him yesterday. Dr. Arning had said that although the use of fish as food had always been common, it was only quite recently that it had been salted. Probably it was this recent use of salted fish which had caused the outbreak. Exactly the same was, he believed, now occurring at the Cape of Good Hope. Here also leprosy was increasing, and here a colony of Malay fishermen and fish-salters had settled. Their salt fish was now sent far inland, and much eaten, and where it went there leprosy made its appearance. The speaker had recently seen two Europeans, who, living inland in Cape Colony, had become lepers. One of them was an Englishman, and the other a Dutchman. Neither could possibly have inherited that disease. Both had been large consumers of the Malay salt fish."[1]

It has been affirmed that as fish has no effect upon lepers, therefore it cannot be intimately associated with the

[1] Ibid.

disease. But we have evidence to prove that, under certain circumstances, fish *does* cause an exacerbation. Speaking of the food supply in the Leper Hospital on Robbin Island, near the Cape of Good Hope, Dr. W. H. Ross says :—"We obtain our meat from Cape Town, and it does not arrive till late on Tuesdays and Fridays; for those two days dried fish is issued instead. The lepers objected strongly to this ration of dried fish. They said that after eating fish they became feverish, and then after the third day a rash broke out; the fever then gradually passed away. I noticed these symptoms myself (the rash occurring in patches of flattened tubercles or shining red blotches), and since we stopped the issue of salt fish the number of such cases has decreased."[1]

Speaking of leprosy at the Cape, Dr. Wright[2] says:—"Anything that tends to lower the system would render the subject more liable to take the disease. It is due more to overcrowded dwellings in which people live like pigs. I think that not the fish diet, but the decomposing fish around them, is the more probable cause. Decomposing fish is more injurious than any other decaying matter."

So much, then, by way of evidence on the influence of diet upon leprosy in England, and confirmatory evidence from other countries.

It will at once be pointed out that the argument is entirely overthrown because in many countries where as poor a diet, and a fish diet too, is used, there is no leprosy; and in some countries where there is leprosy it is difficult or impossible to discover a fish diet.

With regard to the former statement our contention is, not that wholesome cooked fish is the cause of leprosy; but bad, putrid, uncooked fish may be so *under predisposing circumstances*. Before cases of other countries where much fish is eaten and little leprosy appears are emphasized, it must be shown that the cases are actually parallel and comparable *in predisposing and general conditions*.

India is not infrequently quoted as an example of the latter. But it must be remembered that India is the one country that

[1] Dr. W. H. Ross, Surg. Robben Island Lep. Hosp., 1889.

[2] Abtheilung xvi. Dr. Donnet attributes leprosy in Portugal to Newfoundland salted fish ('Brit. Med. Journ.,' 1889, p. 304). Dr. Hjort says the same of the Faröe Islands.

is mostly opposed to the fish-theory. Besides, continued evidence appears, making it more and more probable that a fish diet is much more widely used in India than is commonly supposed.[1]

I would venture to point out that even in the 'Report of the Leprosy Commission,' 1891, in India (see p. 308), there is not a little evidence *in favour* of the fish hypothesis.

Central China is also quoted as a leprotic but not fish-eating region. But is that so? Professor Legge says that fish may be obtained all over the empire.[2]

There can be no doubt that the chief predisposition to any disease is due to the weak resistance the human tissues, under certain circumstance, are capable of offering. The *Bacillus lepræ* is (1) either contained in the food, or (2) raised into activity in the tissues by the use of certain foods. No other way seems possible. In either of these ways there are doubtless certain conditions of the tissues and general bodily health which will affect the accession, progress, and decline of the disease.

Therefore I propose to shortly consider some general conditions which in Mediæval England probably played an active part in the spread and decline of leprosy.

Before passing to this topic, let me draw attention to the mass of evidence previously given under the "Social Conditions of England," relative to the widespread custom of fish-eating in the Middle Ages. If fish be really the specific medium of bacillary introduction, there was abundant use of the specific medium throughout the leprosy period in England. Mr. Hutchinson has declared:—"I believe the advance of Christianity, with its salt-fish fasts, was mainly conducive to the prevalence of the disease in Europe during the Middle Ages, and that its spreading is always due to food, and never to contagion, and its disappearance to an improved dietary and not in the least to enforced isolation."[3]

[1] *Vide* 'St. James's Gazette,' Sept. 13th, 1893. C. D. Terrell, a missionary in the Central Provinces of India, writes to me (Sept. 29th, 1894) and says that leprosy cannot be caused by fish, because it is such a common diet among the lower castes of Hindoos. He believes leprosy in India stationary or decreasing.

[2] 'Chambers' Encyclopædia,' "China," by Professor Legge.

[3] 'Quarterly Examiner,' 1890, "The Leprosy Problem."

Although for a specific disease there is one specific cause, still to produce an epidemic or endemic prevalence of a disease the co-operation of many causes is necessary. So cogent and to the point are the remarks on this subject in the 'Report of the Leprosy Commission,' 1893, that they may be quoted. "In leprosy, as in tuberculosis, a special individual disposition is necessary for the acquisition of the disease. There seem to be certain factors, partly connected with the climatic, economic, social, and hygienic conditions, which establish the endemic nature of this affection. A disease can only be endemic in an area where all the conditions leading to its acquisition exist. Leprosy is an infectious disease, but besides the *contagium vivum*, a certain disposition of the individual is necessary to produce the disease in the latter. Therefore it can only be endemic in areas where, besides the virus, those factors also exist which are held responsible for the special disposition in the individual. . . . .

"An endemic area, then, would be one where (*a*) the virus in some form or other is present, and where also (*b*) such conditions exist as are calculated to receive a special predisposing influence on the population, thus enabling the parasite not only to enter the body, but also to grow and thrive in the same."[1] General causes, such as poverty, famine, hereditary transmission, precarious living, insanitation, over-population, &c., are cited as examples of predisposing agents. At present no one denies the necessity of a special predisposition in the case of tuberculosis; there must exist a certain *ensemble* of unhygienic and bad or poor conditions of life, often perhaps transmitted (*i. e.* the conditions transmitted) from the ancestors.[1] This point is of importance, and is at once brought into relation to the subject by Koch's dictum: "The two diseases (tuberculosis and leprosy) resemble each other etiologically."[2]

I now therefore turn to the predisposing conditions of endemic leprosy in Mediæval England.

[1] 'Lep. Com. Rep.,' 1893, chap. iii, pp. 98—101.

[2] 'The Bacillus of Tuberculosis,' New Sydenham Soc.

PREDISPOSING CONDITIONS OF ENDEMIC LEPROSY IN ENGLAND.

1. *Hereditary transmission.*—It is well-nigh impossible to gauge in historical leprosy to what extent this factor was responsible for the spread of the disease. It may now be safely assumed, according to recent authorities and investigations, that it played an almost inappreciable part in the disease. If the disease had depended for its spread upon this factor, it would not have lasted long.[1] For alongside the fact that the leprosy diathesis is a very small and doubtful quantity, the marked sterility of lepers and the separation of sexes (in many English leper hospitals) must also be borne in mind.

2. *Physical circumstances.*—"As the importance of inheritance as an etiological factor vanishes, so that of external conditions must rise into importance."[2] A glance at the appended list of the leper-houses will—if the leper-houses are any criterion at all of the local prevalence or otherwise of the disease—at once show that there were leprous and

[1] Proof of this may be obtained from various quarters: (*a*) Hansen's investigations into the descendants of 160 Norwegian lepers who emigrated to the United States of America revealed that all the offspring had remained free from the disease to the third generation; "Of all the descendants not a single one has become leprous" ('Virchow's Archives,' 1888). (*b*) In Maracaibo Island (Venezuela leper colony) marriages are permitted among lepers; during the last fifteen years only two births occurred, both children being healthy ('Trinidad Leper Rep.,' Koch, 1890). (*c*) In Hawaiian settlement 2864 lepers had twenty-six children, of whom only two developed leprosy ('Brit. Med. Journ.,' July, 1892).

[2] 'Indian Lep. Com. Rep.,' 1893, p. 217.

non-leprous areas. As examples of the former, we may take East Anglia, Kent, Cambridgeshire, and surrounding counties along the Thames, Ouse, &c., and Cornwall and the Lowlands of Scotland; of the latter, note the almost entire absence of such institutions in Wales, the Highlands, and with an exception or two, the high land of the English Lake District. In short, speaking generally we may notice that the number of these hospitals holds a relative and inverse proportion to the high and dry land of the country. Forrestus[1] and Liveing[2] maintained that "the uncultivated marshy condition of the soil" was thus a "cause" of leprosy.[3] Surely it could not be a *vera causa*, but I think it cannot be denied that it did exercise considerable influence upon the general condition of the people.

But, it will be objected, the Highlands enumerated above, contained few leper hospitals, not because of lack of leprosy owing to physical causes, but because of *lack of people*. Undoubtedly; but the whole of England was exceedingly sparsely populated, and in the twelfth and thirteenth centuries did not contain two and a half millions of people. Certainly Cornwall had no greater population than mid-Derbyshire or North Yorkshire, yet it contained "a great company" of lepers.

"In short, in whatever country an uncultivated soil, a marshy surface, and a humid atmosphere has been found, together with a diet generally consisting of a salted, semi-putrid, insufficient or indigestible aliment, and composed chiefly of animal flesh or fish, with a small proportion of nutritious vegetable matter—there from the earliest times human life has been shortened by the multiplication of pestilential fevers and cachexias of a leprous and scorbutic nature. Therefore, as Raymond observes, even if ecclesiastical writers of the Middle Ages had left us no records of the history of such maladies, the history of the soil, of the circumstances of the times, and of the food generally used, would afford an incontestable monument of the existence

[1] Rees, 'Cyclopædia,' vol. xx.

[2] Gulstonian Lectures, Royal Coll. Phys., 1873.

[3] Defoe says one-fifteenth part of England was marsh-land.

of the leprosy."[1] Erasmus Wilson[2] attributes leprosy to miasma from marshy soil. The decrease of leprosy in Europe may be owing partly to the drainage and cultivation of the soil and the better conditions of living.[2] Kaposi[3] shares the same view, for in summing up he concludes that "it would for the present seem not unreasonable to suppose that certain physicial and geographical peculiarities of particular countries serve as etiological influences on the production of the primary disease."

I am aware that leprosy exists in high altitudes in the north of South America, Mexico, and the Deccan (India), and I do not for a moment wish it to be supposed that I believe the altitude above the sea is an important etiological factor. I do not. But I believe the endemic leprosy areas in England were, as a matter of fact, in low-lying and *marshy* districts, with a very damp climate. And I think the evidence of the distribution of the disease in Mediæval England, as far as we are able to ascertain it, does support the dictum, "the leper ratios vary inversely with the dryness of the climate."[4]

3. *The Crusades.*—It has been pointed out that leprosy was prevalent in England long before the Crusades, and that the Crusades *per se* had no effect in "introducing" leprosy into England. At the same time it is not unlikely that the Crusades affected the life of the English people unfavourably. "Those who were not actually engaged in war, were afflicted with famine and deprived of many of the necessities of life" (Kaposi),[5] because of draining the land of what little wealth it had for the Crusades, and taking away many, including the best, men from the country. Hence whole districts were either laid waste, or remained uncultivated because of labourers (Kaposi).

4. *Social conditions: insanitation, overcrowding, uncleanliness, &c.*—As has been pointed out, the standard of comfort among the people was very low. "The Normans

[1] 'Condition of Europe in the Middle Ages.'
[2] 'Epidemics,' Rollo Russell.
[3] Hebra, 'Diseases of the Skin,' "Lepra."
[4] 'Lep. Com. Rep.,' 1893, p. 58.
[5] Loc. cit.

did not bathe and wash as much as the Saxons," they lived in close unventilated hovels, the diet was poor, and shameful intemperance and immorality prevailed extensively.[1] All this lowered very perceptibly the standard of health as well as comfort, so that it is not surprising to hear how slowly population increased, and how frequent were plague, pestilence, and famine. (*Vide* pp. 70—79 for the social and sanitary condition of England.) Much might be said on the influence of poverty and bad social surroundings, but it has been so well said elsewhere[2] that it is here unnecessary to repeat. Although it is true that cases of leprosy have occurred among people in good position in life, it is nevertheless a universal feature of leprosy that it attacks most frequently those who are low in the social scale, and who by one or more disadvantageous conditions are unable to resist the disease.

5. *Individual idiosyncrasy, family diathesis, previous or concomitant disease.*—It is not probable that either of these three conditions had any great effect upon Mediæval leprosy. Undoubtedly cases did occur, as they occur in these days in tuberculosis, where the above conditions were predisposing to leprosy. Many cases also occurred where a leper had other diseases as well.

6. *Tendency to die out.*—An old Chinese law states[3] that every child of a leper has an inheritance of the disease, but diminished, and that after the fourth generation, *if no healthy blood intervenes*, the disease is entirely extinguished and the person is immune. Thus some believe that the "exhaustion of the pathological principle after the course of four generations" has caused leprosy to die out in Europe. Obviously, if this had been so it is probable something would have been recorded in the laws of England as well as China, which record has not yet been found. Also if this had been carried out in the East, the disease should have been as extinct there as here, which it is not. Therefore the law is probably fallacious.

There can, however, be no doubt that under favourable

[1] Simpson, loc. cit.

[2] 'Lep. Com. Rep.,' 1893; Liveing, Gulstonian Lectures; Voltaire, 'Essai sur les Mœurs,' tom. i, p. 429; Heeren, 'Sur l'influence des Croisades,' p. 424.

[3] 'Immunity from Leprosy,' A. S. Ashmead, M.D.

circumstances (*e. g.* removal from the West Indies to England and complete change of conditions) the leprosy has a tendency to come to an end.[1] (Hutchinson and W. Cottle.) Those favourable circumstances did not exist universally in England during the leprosy period.

7. There are two factors that may have played—and probably actually did so—an important part in the extermination of leprosy in England, viz. the famine in 1315 to 1316, and the Black Death, 1349. Both these events together probably killed more than half of the population, including doubtless the lower classes (villeins, servi, &c.) and many lepers. Not only would this bring about a great diminution in the number of lepers in the country, but the after-effects of these events and similar events in the fourteenth century, did much to improve the social and hygienic condition of England.

[1] 'British Medical Journal,' 1889.

CONCLUSIONS.

1. That the disease designated "leprosy" which was prevalent in England during the Middle Ages was true leprosy (Elephantiasis græcorum), though it is evident that many other diseases were not infrequently misdiagnosed as leprosy.

2. That leprosy was existent in England many years anterior to the Crusades (*i. e.* before 1095).

3. That the Crusades had little or no effect *per se* in spreading the disease in England.

4. That it was generally supposed from the eleventh century that leprosy was a *contagious and hereditary* disease, and that it depended very largely upon these two characteristics for its extension in England; but that it would appear from historical and collateral evidence that such was not the case in any appreciable degree.

5. That a large number of institutions of a charitable, ecclesiastical, or municipal character, were established in the endemic areas throughout the British Islands, for the more or less exclusive use of lepers. That these institutions were occupied by lepers, voluntarily or involuntarily, (*i. e.* by more or less compulsory residence—*De Leproso Amovendo*,) and that certainly not less than 200 existed. That in a certain degree they were establishments for the purpose and object of segregation, but, whether that was so or not, they in no case and at no date actually did serve as such. "Strict segregation"—if we are to trust historical evidence—never was carried out in England.

6. That the endemic disease reached its zenith in the

thirteenth century or earlier, and declined till final extinction in the eighteenth. (In England it approximately disappeared in the sixteenth century.)

6*a*. That probably the Famine (1315) and Black Death (1349) materially assisted in extermination of lepers in the fourteenth century.

7. That the disease being diffused neither by contagion nor heredity, has *under favourable hygienic circumstances* a tendency to die out. Hence, the decline and final extinction of endemic leprosy was due, not to segregation, but to this general tendency under favouring circumstances, viz. to a general and extensive social improvement in the life of the people, to a complete change in the poor and insufficient diet (which, it is evident, consisted far too largely of bad meat, salt, putrid and dried fish,[1] and an almost entire lack of vegetables), and to agricultural advancement, improved sanitation, and land drainage.

8. That of all the unfavourable circumstances it would appear that the food of the people was largely responsible for the prevalence in the human tissues of the lepra bacillus, either by containing and thus introducing the bacillus, or by assisting in its growth and action in the tissues.

[1] I am not in a position to make any more definite statement regarding the fish hypothesis further than this: The diet of the English people during the leprous period included a large quantity of stale fish, and it would appear that this obnoxious fish diet lessened at or about the same period that leprosy declined. I am not qualified to judge of the etiological relation between the two, nor do I think I have been able to produce evidence sufficient to authorise a decided conclusion in favour of the fish hypothesis as the *sole cause of leprosy*. I feel no doubt that, in conjunction with other dietaries and conditions, it played some part in the prevalence of the disease.

LEPROSY IN THE BRITISH ISLANDS.

A LIST OF CHIEF DATES.

Prefatory Note.

This list of the chief dates of the history of Endemic Leprosy in the British Islands has been compiled from a very large number of records. The page on the left hand relates to Leprosy in the British Islands; and though entitled by the shorter term "England," it is to be understood that it includes Great Britain, Ireland, and Islands. Where only the name of a place appears, followed by a date, it signifies that at that place and time (approximately) a House or Hospital set apart for lepers was established. Those Hospitals whose date of foundation is not obtainable are printed in the List at the end. The thirteenth century has been supposed by Liveing and others to have witnessed the zenith of Leprosy in this country. It may have been earlier. Even during the twelfth century more Leper-houses were instituted, though this is not a fair criterion of the rise and fall of the disease. By the end of the thirteenth century there can be little doubt that Leprosy was beginning to decline (with a few local exceptions, *e. g.* Devon and Cornwall).

With a few exceptions, authorities have not been printed, for want of space; but no date has been inserted for which there is not some more or less reliable authority.

It will be readily understood that authenticity 1000 years ago is occasionally rather doubtful.

On the right-hand side have been placed any events which are landmarks in history, or have had, in the opinion of various writers, a direct or indirect effect upon the disease.

G. N.

Period.	LEPROSY IN ENGLAND.
B.C.	
	60 B.C. Leprosy first "brought to England" (Parton; Burton) (?).

CHARACTERISTICS OF PERIOD, AND LEPROSY IN OTHER COUNTRIES.

Before 4000 B.C. Egyptian civilisation; Memphis founded. In Europe, polished Stone Age (Neolithic) begun.

3500 B.C. Husapti (?); Leprosy in Egypt.

2500–2000 B.C. First migration from the Aryan centre: Celts moving Westward, Indo-Persic tribes Southward. Chinese civilisation.

1600 B.C. Phœnician cities and Damascus flourishing. Colonisation round the Mediterranean. Trade for tin with Cornwall.

1320 B.C. The Exodus; probably during Meneptah's time.

1000–900 B.C. Celts already in England, with bronze in use.

600–400 B.C. Leprosy common in Hindostan (Susruta) and China. Leprosy common in Greece, and called Elephantiasis.

460 B.C. Hippocrates described Leprosy.

260 B.C. Manetho testified to presence of Leprosy among the Jews (90,000).

200 B.C. Leprosy common in Greece, and designated Elephantiasis (Kaposi).

100 B.C. Leprosy became known in Italy at this period.

95 B.C. "There is a disease called Elephas, which has its rise on the river Nile, in the middle of Egypt" (Lucretius).

60 B.C. Leprosy first in Spain.

53 B.C. Celsus wrote on Leprosy.

Period.	LEPROSY IN ENGLAND.
A.D.	**First to Ninth Centuries.**
	432. First notice of Leprosy in Ireland (Colgan's 'Acta Sanctorum').
	550. Pestilence of Leprosy in Ireland ('Chronicon Scotorum').
	603. St. Kentigern, of Glasgow, died; "mundabat leprosos."
	606. Increase of Leprosy during a Roman invasion in the time of Heraclius (Lanigan, 'Eccles. Hist.').
	654. Death of Fechin of Fore (Co. Westmeath), who saw much Leprosy in Ireland.
	695. Death of St. Finian, a Munster Leper (Lanigan, 'Eccles. Hist.').
	869. Leper Hospitals existed in Ireland. The Hospital at Armagh burned by Arlaf.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

First to Ninth Centuries.

81. Aretæus (wrote on Leprosy).
97. Archigenes (wrote on Leprosy).
128. Claudius Galen born; died about 200.
Aretæus wrote on Leprosy (second century ?).
Leprosy became prevalent in Europe in second century.
360. Oribazius (wrote on Leprosy).
Order of St. Lazarus founded in Palestine (366).
Theodoret mentions Lazarettos for Lepers in fourth century.
Christianity introduced into Ireland during fifth century.
500. Charaka (wrote on Leprosy).
A plague desolates Europe and Asia during sixth century.
Aetius wrote on Leprosy and described it as wide-spread.
549. Council of Orleans Leprosy Decree.
583. Council of Lyons Leprosy Decree.
597. Conversion of English to Christianity.
Gregory of Tours speaks of Lazarettos in sixth century.
Hospital of St. John founded for Lepers in seventh century, on Lake Constance.
661–664. A pestilence depopulated Britain and Ireland. Leprosy in Brittany.
Rothar, King of the Lombards, made laws to prevent the marriage of Lepers.
Leper-houses existed at Verdun, Metz, and Mastricht in the seventh century (Virchow).
St. Boniface (eighth century); "mundabat leprosos."
Hospital of St. Lazarus founded at St. Gallen, Lake Constance (720 ?).
St. Othmar founded Leper-houses in Germany. He died 758.
757. Pepin provided an Act that Leprosy in a husband or wife should be sufficient cause for separation or divorce (Parliament at Campiegne).
789. Charlemagne re-enacted similar laws. He also enforced sequestration.
St. Nicolaus, of Corbie, founded Leper-houses in France (eighth century).
Isidore, of Spain, alludes to Leprosy in Spain in eighth century.
868. Council of Worms Leprosy Decree.
874. Iceland peopled from Norway.
897. Fatal plague in England.

Sovereigns.	LEPROSY IN ENGLAND.
	Tenth Century.
Edward succeeded Alfred, 901.	
Athelstan. 925.	
Edmund. 940.	
Edred. 946.	Leprosy prevalent in England.
Eadwig. 955.	950. Hywel Dda, or Howell the Good (a Welsh king who died about 950), enacted a code of Laws relative to Leprosy ('Celtic General Repository,' vol. iii, 199).
Edgar. 959.	Venedotian and Dimetian Codes (Leper laws). A Law was passed making Leprosy a valid cause for divorce.
Edward. 975.	
Ethelred. 978.	

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Tenth Century.

Leprosy prevalent in Europe.

923. Truela, son of King Alfonso of Spain, died of Leprosy.

The School of Salerno existed in this century.

936. Hospital at York (may have been partly Leprous, probably not) founded by Athelstan; first endowed hospital in England. (206 patients.)

(Leper-houses had existed in Palestine for nearly 1000 years.)

Christianity advances in England and also in Northern Europe.

The Normans were now established in France.

The Danes in England.

Fast Days observed more strictly.

958. Leprosy mortality excessive; considerable suffering and misery throughout Europe.

The year 1000 marks the end of the Dark Ages.

Sovereigns.	LEPROSY IN ENGLAND.
	Eleventh Century.
Ethelred. Edmund Ironside. 1016.	
Canute. 1017.	
Harold Hardi-canute.	
Edward the Confessor. 1042.	
Harold (son of Godwin). 1066.	
	Beverley (before the Conquest, Tanner).
	London (Westminster), before the Conquest (Speed, Stowe, &c.).
William I. 1066.	Northampton, during reign of William I.
	1075. Hugh d'Orivalle, Bishop of London, had Leprosy.
	Chatham (St. Bartholomew), 1078.
	1084. Leper Hospital founded at Canterbury by Lanfranc (Archbishop of Canterbury), who died 1089.
William II. 1087.	
	Several Leper-houses founded in England previous to the first Crusade.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Eleventh Century.

1007. Leprosy prevalent in Spain.

It was at this time that the first hospitals and pest-houses were built. We must not necessarily assume that Leper-houses implied a new or increasing disease.

1066. The Norman Conquest.

1067. First Leper Hospital in Spain—Valencia.

The Jews arrived in England.

Hildebrand, Pope Gregory VII, 1073–1085.

1086. Domesday Book. Population probably under two millions (mostly in Southern and Eastern Counties—very thin north of York); six towns with population over 5000.

1087. Death of Constantius of Carthage, founder of the Salernian School, who studied Leprosy, and originated various theories regarding it.

1095. First Crusade was begun by Peter the Hermit.

Low condition of English Agriculture; much misery, famine, and pestilence.

1098. Return of the first Crusaders. [See Kaposi.]

Sovereigns.	LEPROSY IN ENGLAND.
	Twelfth Century.
Henry I. 1100.	The writ "De Leproso Amovendo" in force at this period.
	The earliest mention of Leper-houses in Scotland.
	Knights of St. Lazarus acquired a footing in England (Stephen).
	Lincoln (Holy Innocents) founded by Remegius, Bishop of London, 1100. Wilton, 1100. Fugglestone (Wilts), xii.
	London (St. Giles), founded by Queen Matilda, 1101.
	York (St. Nicholas), about 1110. Newcastle, 1112.
	Norwich (St. Mary Magdalene), before 1119.
	Oxford (St. Bartholomew's), during Henry I's reign.
	Bury St. Edmunds, 1135.
	Colchester (St. Mary Magdalene), founded by Eudo, during Henry I's reign.
Stephen. 1135.	Aylesbury (St. John's and St. Leonard's), 1135.
	Gloucester, Tilton, Tweedmouth, Careton (all four in twelfth century).
	Bristol (St. John's and St. Laurence's), 1135 (?). Harchope (David I).
	Maiden Bradley, Wilts, before 1145.
	St. Alban's (St. Julian's) founded by Jeffrey, Abbot of St. Alban's, 1135.
	Reading, 1134. Warwick, 1135. Shrewsbury, 1136. Canterbury (St. Lawrence), 1137.
	Burton Lazars, Leicester, during reign of Stephen. Ripon, 1139.
	Dover, 1141. Lynn, Norfolk (2), before 1145. Wymondham, 1146.
Henry II. 1154.	Huntingdon (by David of Scotland), 1165. Aldcambus (twelfth century).
	Ilford (Henry II). Somerton, Norfolk (Henry II).
	Coventry (Henry II). Derby (Henry II).
	Havering, 1154. Herbaldowne, 1154. Peterborough, 1150. Seaford, 1171.
	1163. Will of Bishop Iscanus respecting Market Tolls for Lepers in and around Exeter.
	Exeter, 1163. Aldnestun, 1177. Southampton, 1179. Reading (another), 1180. Carlisle, 1180.
	1166. Death of St. Aelred, of Rievaux, who assisted Lepers in Galloway.
	Sherburn, founded by Hugh Pudsey, Bishop of Durham, in 1181. Ilford, 1183 (?).
Richard I. 1189.	Waterford, 1185. Tannington, 1189. Racheness, 1189. Romney, 1190 (?). Lancaster, 1190. Badele, 1195. Pilton, 1197.
	Chichester, 1173. Herting, 1189. Kilbixy, 1192. Dunwich, 1199.
John. 1199.	Chesterfield, 1199. Leicester, 1199. Berrington, 1199. Berkhamstead, 1200.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Twelfth Century.

It was a custom during and before this century to burn and otherwise persecute Lepers in Europe. Henry II, in an edict, threatens it in England.

The Church of Rome gained much power in England during Stephen's reign.

1154. Amalgamation between English and Normans in commerce, social life, and intercourse.

The Council of Lateran, 1179: famous Leprosy Decree.
The Carthusians settled in England, 1181.

Leprosy prevalent in Denmark (Gislasen).

The third Crusade, under Richard I.

Baldwin IV, King of Jerusalem, himself became a Leper, and ten years later resigned his crown because of disablement (1184).
1181. Pope Lucius III, Leprous Decree.

1190. Pope Clement III, Leprous Decree.

1192. Grain very scarce in England; serious famine in 1194.

Approximate time of appearance of Leprosy in Iceland.

Sovereigns.	LEPROSY IN ENGLAND.
	Thirteenth Century.
John.	Leprosy reached its zenith during this century (Liveing) (?).
	1200. Leprosy Decree of Provincial Synod at Westminster; Hubert, Archbishop of Canterbury.
	Ipswich (about 1200). Chester (in thirteenth century).
	Towcester, 1200. Devizes, 1207. Chesterfield, before 1200. Hexham, 1210.
	Sturbridge, 1205. Selwood, 1212.
	Linlithgow, 1214 (?). Banbury, 1216. Hedon, before 1216. Windsor, 1216.
Henry III. 1216.	Henry III. visited Lepers every Holy Thursday.
	Thetford (St. John Baptist and St. Mary Magdalene), before 1216.
	Dublin (Lazar's Hill), 1220. Grimsbury (John), Bridgnorth, 1224.
	Bolton (Robert de Roos), 1225 (?). Rothfan, 1226.
	Wycomb, 1229. Ottford, 1229.
	Dunstable (in thirteenth century). Rochester (Henry III).
	Catterick (Henry III). Dunstane (Henry III).
	Conishead (thirteenth century). Cotes, 1230. Ospring, 1235.
	1242. Leprosy Canons of Scotch Church, separating them from society.
	Newport Pagnell, 1240. Mere, Lincolnshire, 1246. Lechlade, 1246.
	Crowmarsh, 1248. Kendal (thirteenth century).
	Norwich (St. Giles), 1249. Stamford, Lincoln, 1250 (?)
	Baldock (Henry III). Winchester, 1259. Worcester (before 1259).
	1269. Leprosy Segregation Canons of Scotch Church.
	Pope Alexander IV. sent a Bull to confirm estates and statutes of St. Giles' Hospital. Henry III. rebuilt St. James' Hospital, Westminster.
Edward I. 1272.	Bebington, 1272. Doncaster, 1272. Chosell, 1272.
	York (St. Giles), 1274. Taunton, 1280. Lincoln (St. Giles), 1280.
	Brackley, 1280. Long Blandford, 1282. Berwick-on-Tweed, 1283.
	1283. Statutes of Society of Merchants at Berwick ordered that Lepers should not come into the burgh.
	Pontefract, 1286. Brentwood, 1292. Sedburbrook, 1292.
	Brook-Street, near Brentwood, 1292. Cork, 1295.
	Ickborough, Norfolk (Edward I).
	1296. Leprosy in Edinburgh.
	Leprosy prevalent, but probably declining.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Thirteenth Century.

Period of returning Crusades.
French Invasion of England.

Magna Charta, 1215.

Orders of Dominican (1221) and Franciscan (1224) Friars founded in England.

Louis VIII's Code of French Leper Laws. 2000 Leper Hospitals in France; and, according to Heren, these figures were not smaller in the middle of fifteenth century.

1242. Straw first used for the King's bed (Henry III).

Franciscan missionaries laboured in China.

1248. Ferdinand III. founded Leper Hospital at Seville.

1250. Leprosy existed in Japan.

1253. Fine linen first made in England.

1257. Severe famine in England.

1263. Norwegians invaded Scotland (unsuccessfully).

1266. First mention of Leper-houses at Bergen, in Norway.

1270. St. Louis of France on the last Crusade. Many of his soldiers became Leprous (Joinville).

Time of Dante.

1290. Council of Nogaro exempted Lepers from the jurisdiction of secular justices, prohibited their entrance into markets or towns, and insisted on their wearing some distinguishing badge.

Sovereigns.	LEPROSY IN ENGLAND.
	Fourteenth Century.
Edward I.	Chester (before fourteenth century).
	Kingscase, Ayr (before 1306).
Edward II.	Kendal (before 1307).
1307.	1307. Bishop Button willed Legacies for Lepers in Thirty-nine districts in the Diocese of Exeter.
	Langport, 1310.
	Boughton, near Chester, 1310.
	Rochester, 1316. Kingston, Surry, 1316.
	Langwade, 1320.
	Little Maldon, 1323. Ilchester (fourteenth century).
Edward III.	Hardwick, 1327. Otteley, 1327.
1327.	1329. Death of Robert Bruce from Leprosy ('Chronicon de Lanercost,' 264).
	Ospring, 1325. Beecles, 1327. Eye, 1329. Dartford, 1330.
	Lynn, Dorset, 1336.
	Hythe, 1336.
	Bridgwater (Edward III). Gild Martyn (fourteenth century).
	A Leprosy "visitation" in the West of England (Somerset, &c.).
	Dublin, 1344.
	1346. Baldock, Bishop of London, made rules for the Leper Hospital at Ilford.
	1346. Edward III's Proclamation issued (Expulsion of Lepers from the City of London).
	Glasgow, 1350 (Robertson says 1494). Govan (fourteenth century).
	Edward III. annexed St. Giles' to Burton Lazars by Charter.
	1350. Lepers getting searee at St. Albans and Aylesbury.
	1365. There were now four Leper-houses at York, and they remained for just 100 years (Robertson).
	Norwich (4), 1370. Plympton, 1370.
	Gorleston, 1372. Honiton (fourteenth century ?). Newbridge, 1373.
	Plymouth, 1374. Yarmouth, 1374. Thetford (Richard II).
	1375. Regulations against Lepers entering the City of London; the taking of the oath by John Gardener.
Richard II.	Boughton-under-Blean, 1380. Snoring Parva, 1380.
1377.	Wisbeeh, 1380. Kilehief (Co. Down), 1387.
	1389 Speeial exemptions of Lazar overseers from judieial duties.
	Thetford (St. Margaret), 1390.
	Hoddesdon, 1391.
	Cambridge (2), (Richard II ?).
	1398. John of Gaunt's will, bequeathing to London Lepers. Henry IV, a Leper (according to Gaseoigne).

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Fourteenth Century.

Commencing decline of Leprosy throughout Europe during this century.

1303. Nogaro Council (xvii) proclaimed excommunication upon any who levied taxes upon Lepers.

1305. Lilium Medicinæ (Gordon).

1314. Decrees as to examination of Lepers (Milo, Bp. of Orleans).

1315–1316. Famine in England; much disease and general misery.

Various "Violent Plagues" ravaged Europe.

Norfolk the richest county in England after Middlesex (including London).

The Black Death in Europe; in England, 1349.

1357. Laws passed in England protecting fisheries and the supply of fresh fish instead of dried (31 Edw. III, cc. i, ii, iii); also to prevent secret storage of dried fish (31 Edw. III, St. iii, c. i.).

First Sanitary Act in England against water pollution.

1377. Population of England between two and three millions; London, 35,000; York, 11,000; Bristol, 9000; Coventry, 7000; Norwich, 6000; Lincoln, 5000. No town in Lancashire worthy of a separate return (Rogers).

1384. Death of Wiclif (born 1324).

1388. Renewal of persecution of Lepers in France (Charles VI).

1389. Royal Proclamation with regard to cleansing the streets of London.

Guy de Chauliac, Glanville, John of Gaddesdon, Bernard Gordon, and Gilbert wrote on Leprosy.

Sovereigns.	LEPROSY IN ENGLAND.
	Fifteenth Century.
Henry IV. 1399.	Liskeard (before 1400).
	Wexford, 1408. Downpatrick, 1415.
	Dartford, in Kent (fifteenth century).
	Edinburgh (Greenside), fifteenth century (Robertson says 1589).
	Henry IV. granted the custody of Wexford to son of William Rochford
Henry V. 1413.	1413 St. Mary Magdalene Hospital at Reading closed because no Lepers forthcoming.
	1414. Leper Hospitals in England "for the most part decayed, and the goods thereof spent in other use" (2 Hy. V, c. i.).
Henry VI. 1422.	1427. Scottish Parliament compelled to legislate for Lepers (1427, c. 8, II, 16).
	Classification of Leper Hospitals (Rastall St., fol. 228).
	1429. A legacy left to Lepers in Newcastle.
	Lynn, Norfolk (3). 1432.
	The Leper-house at Sherburn reduced from 65 beds to 13, and of the latter two are to be kept for Lepers "if such can be found." 1434.
	1454. The Leper Mayor of Exeter (Richard Orenge).
	1457. Lincoln Leper Hospital annexed to Burton Lazars.
Edward IV. 1461.	1463. The "Fair" of St. Mary Magdalene granted to Exeter Corporation. Stirling, 1463.
	Lismore, Limerick, 1467.
	1468. The Leprosy certificate of the Court physicians of Edward IV.
	1470. A Royal Commission, appointed by Edward IV, reported marked decrease of Leprosy.
	London (Highgate), 1472.
	1478. Leprosy at Prestwick.
Edward V. 1483.	1485. Lepers still in London, and a number of legacies left to them ('Calendar of Wills,' vol. ii).
Richard III. 1483.	
Henry VII. 1485.	Walsingham, Norfolk. 1486.
	Leprosy by no means rare in Lincolnshire.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Fifteenth Century.

1400. Importation of corn into England from the Baltic necessary.

1407. Great plague in London.

Formation of modern "middle classes."

Numerous Leper-houses were provided in Switzerland and Spain.

1440. Invention of Printing.

1453. Turks take Constantinople.

Discovery and colonisation advanced.

1478. Segregation Decree of Ferdinand of Spain (relaxed 1508).

1485. First visitation of the Sweating Sickness to England.

Leprosy was now almost entirely extinct in Italy.

1488. An edict ordering all Lepers to leave Paris.
1490. Suppression of Order of St. Lazarus by Pope Innocent VIII because of decrease of Leprosy.
1492. Discovery of America (Columbus).
1496. Epidemic of syphilis in England; Scotland, 1497.
1497. Vasco di Gama rounds the Cape.
End of the Middle Ages.

Sovereigns.	LEPROSY IN ENGLAND.
	Sixteenth Century.
Henry VIII. 1509.	1512. Lepers at Stirling (Robertson).
	Aberdeen, 1519. (1363 according to 'Registir. Episcop. Aberdeen,' vol. ii, 283; probably exclusively for Lepers, 1519.)
	1529. Donations granted to the Lepers in Glasgow. Honiton, 1530.
	Newton Bushell, 1538. Charter mentions "grete nomber" of Lepers in the district.
	1536–1540. Suppression of the Monasteries and many of the existing Leper-houses; but the larger ones were spared by 1 Edward VI, c. 3, "to prevent the contagion spreading."
	Galway, 1543.
Edward VI. 1547.	A Royal Commission (Edward VI) reported most of the Leper Hospitals in England empty, 1547.
	1547. Eight Lepers in Totnes Hospital.
Mary. 1553.	1569. Leprosy still in Norfolk.
Elizabeth. 1558.	Leprosy was frequent in Cornwall in the time of Elizabeth (Polwhele).
	Perth, 1571.
	1574. Herbaldowne Hospital providing relief for more than thirty. Leper Laws made in Scotland; repealed, 1579.
	1582. Refoundation of Bodmin Hospital by Elizabeth "A great company of Lazar people." Glasgow Lepers allowed free access to burgh (Robertson) till 1593.
	1584. Magistrates of Edinburgh issued orders relative to Lepers.
	1586. Similar orders issued in Glasgow.
	1589. Six Lepers in Hospital at Glasgow; none in the Ilford Hospital.
	1585. Sherburn Leper Hospital diverted from its original purpose (because no Lepers forthcoming), became a general hospital.
	1591. Five Lepers consigned to Hospital in Edinburgh. Lepers still at Aberbeen. Apparent outbreak of Leprosy in Scotland.
	Haddington, 1593.
	1593. Glasgow Lepers banished from the burgh by Kirk session.
	1597. An Act for suppression of Lazarite Proctors.
	1598. Heutzner, travelling through England, remarks on the frequency of Leprosy.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Sixteenth Century.

Leper Hospitals still being founded in the Netherlands and parts of Germany and Spain.

1509. Art of gardening introduced into England.
1517. The Reformation (Luther).

Immense development of new life in Europe.
Terrible plague in England.

1525. Hops first brought into England.
1534. Reformation established in England.
1539. Greater Monasteries suppressed.
Salads, carrots, and turnips became more common. Henry VIII, on account of decline in the use of fish, passed a law compelling its use.
1542. Leper Hospital built on Canary Islands.
1544. Law passed in England for the protection of fisheries and the sale of fish at the fairs of Sturbridge, St. Ives, and Ely.
1546. Fracastor enunciated the Doctrine of Contagion.

1555. Leprosy very prevalent in Iceland (Ehlers).

One-fifteenth part of England consisted of unreclaimed marshy land (Defoe).
Many edicts in Elizabeth's time for reclaiming large areas of marshland in Durham, East Anglia, Sussex, Kent, Huntingdon, Northampton, &c.

1560. Lominus said Leprosy spread by contagion and hereditary transmission.
1564. Shakespeare born.
1565. Protestantism seemed likely to triumph throughout Europe, Spain and Italy excepted.

1565–85. Antwerp's ruin, London's gain.

Potatoes introduced into England in this century. Also tobacco, tea, watches, carpets, and chimneys.
Alpinus wrote on Leprosy.
Final extinction of Leprosy in Denmark (Gislasen).
Population of England five millions (Froude).

Sovereigns.	LEPROSY IN ENGLAND.
	Seventeenth Century.
Elizabeth.	1604. There was a Leper in the Lazar-house at Aberdeen, and one in Kingcase Hospital.
James I. 1603.	Thirty-nine Lepers in Bodmin Hospital in James I's reign, who were largely patronised by the King.
	1610. A Leper at Aberdeen, in addition to the one in 1604; another, 1612.
Charles I. 1625.	1642. One Leper at Honiton (four others up till 1807).
Commonwealth.	
Cromwell. 1649.	1652. For "many years Ireland hath been almost quite freed" from Leprosy (Boate).
	1657. An order made to dismantle the Lazar-house at Greenside, Edinburgh.
Charles II. 1660.	1661. Leper-house at Aberdeen razed to the ground.
	1674. The Ripon Hospital repaired by Richard Hooke.
James II. 1685.	
William and Mary. 1689.	
	St. Kilda, 1684.
	Leprosy was prevalent in the Faröe and Shetland Islands.
	1693. Records of Lepers at Kingcase.
	1699. Leper endowment of St. Mary Magdalene, Southampton, charitably distributed, on account of marked decrease of Leprosy "for many years."

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Seventeenth Century.

Rise of modern science and philosophy. Kepler, Galileo, Cervantes, Bacon, Spinoza, Pascal, Shakespeare, Milton, Newton.

1601. The Poor Law.

1609. Rise of Holland, foremost trading country of Europe.

1618. Harvey discovers circulation of the blood.

1620. The Pilgrim Fathers. Bacon's 'Novum Organum.'

Settlements made in East, 1620; and West Indies and Barbadoes, 1625.

1634. The fens of East Anglia reclaimed.

1650. The Dutch began a colony at the Cape.

1651. Four Leper Hospitals built in Iceland (Ehlers).

1656. Leper Hospital built on Madeira.

1665. Plague in London.

1666. Fire of London. Great sanitary improvements.

1676. Leprosy very prevalent in the Farö Islands.

Fernelius and Forestus first called in question the contagiousness of Leprosy.

Population doubled during the century (Rogers); ten millions.

Sovereigns.	LEPROSY IN ENGLAND.
	Eighteenth Century.
Anne. 1702.	1712. Legacy left to Lepers at Bath.
George I. 1714.	
George II. 1727.	1730. Leprosy prevalent in Ireland (Von Triol). 1736. Five Lepers (females) at Papastour (Robertson). 1737. Leprosy at Bath. Papastour, Shetland, 1740, whither it had been customary to export Lepers (Liveing). 1742. Public thanksgiving in Shetland on account of disappearance of Leprosy. A few cases continue to appear. 1753. Several Lepers in St. Kilda.
George III. 1760.	1775. Last endemic case of Leprosy in Ireland at Waterford. 1778. A Leper existed in the Shetlands. 1778. "A Leper is now a rare sight" (White of Selborne). 1798. A man, John Berns, a Shetland Leper, descended from a Leprous family, admitted into the Edinburgh Infirmary.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Eighteenth Century.

Astounding growth of the British Empire.

1707. Severe smallpox epidemic in Iceland killed one-third of the population, including many Lepers.

1643–1715. Louis XIV.

First undoubted case of Ergotism belongs to this century (Creighton).

Leprosy still in France (Upper Auvergne, &c.; Bell Isle still used as a Leper refuge).

1757. British Empire in India founded; Clive at Plassey.

1759. One hundred and fifty Lepers in Norway (three hospitals).

Brindley, Watt, and Arkwright.

The Factory System begins.

1768. 280 Lepers in the four Iceland Hospitals (Petersen).

1769. Captain Cook landed in New Zealand; Leprosy present.

1787. Leprosy endemic in Auvergne.

1792. Gas first used for lighting.

Hensler wrote on Leprosy.

Population nearly doubled during the century (Rogers).

Sovereigns.	LEPROSY IN ENGLAND.
	Nineteenth Century.
George III.	A few isolated cases of supposed indigenous Leprosy occur in the present century in the British Islands. 1809. Supposed case of indigenous Leprosy in Edinburgh; another in the Shetlands (Edmonston). 1810. Leprosy endowment in Cornwall transferred to general infirmary because no Lepers needing assistance (Brown's 'Cases in Chancery,' 166, n.).
George IV. 1820.	
William IV. 1830.	
Victoria. 1837.	The Truro Infirmary received the revenues of the Leper Hospital formerly there, and bound itself to take in Lepers should such be forthcoming. 1855. Supposed indigenous case in the Hebrides (Broadbent). 1877. Supposed case of Leprosy in Ireland.
	Leprosy unknown as an indigenous disease throughout the British Islands. 1889. Since 1882 twenty cases of Leprosy have been brought before the Dermatological Society (probably none indigenous). 1891. Supposed indigenous case of Leprosy in Ulster.

CHARACTERISTICS OF CENTURIES, AND LEPROSY IN OTHER COUNTRIES.

Nineteenth Century.

Continued rapid advance of science, inventions, and discoveries.

1807. Slave trade abolished in British Empire.

1811. First Leper Hospital at Calcutta.

1815. Waterloo.

Population of United Kingdom nineteen to twenty millions.

1836. Many Lepers still in Norway and Iceland; some in Portugal, Spain, Italy, Sicily, Crete, New Zealand, &c.; very prevalent in India, China, Japan, and the West Indies.

1842. *Om den Spedalske Sygdom Elephantiasis Græcorum*, Danielssen and Boeck ("first clear account of leprosy"—Kaposi).

1848. The Chinese arrive in Hawaiian Islands.

1853. First case of Leprosy in Hawaiian Islands (?).

1863. Leprosy still common in Iceland.

1867. Royal College of Physicians' Report.

1874. Hansen's *Bacillus of Leprosy*.

1885. Norway contained 1377 Lepers.

1889. Death of Father Damien. Six hundred Lepers at the Cape.

1890. Leprosy Commission in India (H.R.H. the Prince of Wales). The disease practically extinct in New Zealand. 18,000 Lepers in Columbia.

1892. Lepers in Spain, 1200; in Norway, 1200; from 600 to 700 others elsewhere in Europe (Arning).

Lepers in India, 100,000; in Japan, 150,000 (?).

1894. Lepers in Iceland, 140 (Ehlers).

NOTE.

This list of leper-houses is appended as a matter of interest, and not with the intention of arguing therefrom the exact prevalency of the disease. It has been drawn up with considerable care, and in order to add to its authenticity, at least one authority has been given for each place. It would have been an easy but unnecessary task to have given more than one standard authority for most of them. Where an authority appears more than once, and the author only is given, it is to be understood that the same work as previously mentioned is indicated. The number placed after the town indicates the number of hospitals; the figures after the name of the hospital refer to the number of inmates. The word "Fair" denotes that part or all of the revenues were secured by means of an annual or more frequent Fair. An asterisk distinguishes those which were undoubtedly in possession of Charters, or were supported by the active patronage of Royalty. In the fourth column the approximate or actual date has been placed, and if more than one has been discovered, the one supported by apparently the highest authority has been printed.

G. N.

LIST OF LEPER-HOUSES ESTABLISHED IN THE BRITISH ISLANDS DURING THE MIDDLE AGES.

England and Wales.

Place.	Name.	Founder.	Date.
Andover,[1] Hants	St. Mary Magdalene.		
Appleby,[2] Westmoreland	St. Nicholas.		
Athelington,[3] Dorset	St. Mary Magdalene	Founded by the Chidiocks (Coker).	
Aylesbury,[4] Bucks, 2	St. John's and St. Leonard's		1135.
Badele,[5] Darlington			1195.
Baldock,[6] Hertfordshire			xiii.
Bath,[7]		Richard, xix Bishop of Bath.	
Banbury,[8] Oxfordshire	St. John's		1216.
Bebington,[9] Cheshire			1272.
Bawtry[10]	St. Mary Magdalene.		
Beecles,[11] Suffolk	St. Mary Magdalene		1327.
Berkhampstead,[12] Herts	St. John the Evangelist St. John the Baptist		John.
Berington[13]	(13 beds).		1199.
Brackley,[14] Northampton			1280.
Berwick-on-Tweed,[15]	St. Mary Magdalene		1283.
Beverley,[16] Yorkshire	St. Giles		1066.
Blythe,[17] Notts	St. Mary Magdalene	William de Cressi	Pope Honorius.
*Bodmin,[18] Cornwall	St. Lawrence (39)	Elizabeth refounded it in 1582.	

* Indicates Charter or Royal Patronage.

[1] T. W. Shore, 'Hist. of Hampshire.' [2] H. Barnes, 'Leper-houses of Cumberland.' [3] Tanner, 'Nostitia Monastica.' [4] Sir Wm. Dugdale, 'Monasticon Anglicornm,' 81. [5] Robertson, 'App. Arch. Essays,' vol. ii. [6] Sir W. Dugdale, 762. [7] Camden Soc., 1863. [8] Thos. Dugdale, 'England and Wales,' vol. i. [9] Sir W. Dugdale, 756. [10] H. P. Wright, 'Leprosy and Segregation.' [11] Sir J. Y. Simpson, 'Archæolog. Essays,' vol. ii. [12] Pettigrew, 'Arch. Assn. Journal,' vol. ii, 95. [13] Robertson. [14] Baker, 'Hist. of Northampton,' 584. [15] T. Dugdale, vol. i. [16] Tanner. [17] Pettigrew, vol. ii, 95. [18] 'Monastic. Dioc. Exon.'

ENGLAND AND WALES—*continued.*

PLACE.	NAME.	FOUNDER.	DATE.
Bolton,[1] Northumberland	Holy Trinity (13)	Robert de Roos.	1225.
Boughton,[2] Cheshire			1310.
*Bristol,[3] 3	St. Mary Magdalene, St. John's, and St. Lawrence		xii. John.
*Bridgnorth,[4] Salop	St. James		1224.
Bridgwater,[5] Somerset	St. Giles		xiv.
Brentwood,[6] Essex			1292.
Boughton-under-Blean,[7] Kent	St. Nicholas	Thomas of Hurst	1380.
*Burton,[8] Leicestershire		Roger de Mowbray, and public subscription	xii.
Bury St. Edmunds,[9] 4	[St. Saviour ?], St. John, St. Nicholas, St. Stephen, St. Peter		1135.
*Carlisle[10]	St. Nicholas (13)		1180.
*Colchester,[11] Essex (Fair)	St. Mary Magdalene	Eudo Dapifer	1100.
Cotes,[12] Northampton			1230.
Careton[13]			xii.
*Cambridge,[14] 2 (Fair)	St. Anthony and St. Anne's		xiv.
Coventry[15]	St. Mary Magdalene		xii.
Canterbury,[16] 2	St. Nicholas, St. Lawrence	Lanfranc	1137.
Catterick[17]	St. Giles		xiii.
Christchurch,[18] Hants			
*Chatham,[19] Kent	St. Bartholomew	Bishop Gundulph	1078.
Chosell,[20] Norfolk			1272.
Chichester,[21] Sussex	St. James	Leodg. de Hampton	1173.
*Chester[22]	St. Giles	Earl Blaudeville	xiii.
Chesterfield,[23] Derbyshire	St. Leonard's		1199.
Conishead,[24] Lancashire		William de Lancastre	xiii.
Crowmarsh,[25] Oxfordshire			1248.
Derby,[26] 2	Maison Dieu, St. Leonard's		xii.

* Indicates Charter or Royal Patronage.

[1] Thomas Dugdale. [2] Tanner. [3] Sir W. Dugdale, 670. [4] Eyton, 'History of Salop.' [5] Sir W. Dugdale, 773. [6] Simpson. [7] Pettigrew, vol. ii, 95. [8] Nichol's 'Leicestershire.' [9] Thomas Dugdale, 55. [10] Lysons, 'Magna Britannica,' vol. iv. [11] Sir W. Dugdale, 631. [12] Pettigrew, vol. ii, 95. [13] Burton's 'Leicestershire.' [14] Lysons, vol. i. [15] Tanner. [16] Somner, 'Antiq. of Canterbury,' 80. [17] Tanner. [18] T. W. Shore. [19] Tanner, 211. [20] Pettigrew, vol. ii, 95. [21] Sussex, 'Arch. Soc.,' vol. xxi. [22] Ormerod, 'Hist. of Chester,' vol. i, 352. [23] Tanner's 'Baronage.' [24] Sir W. Dugdale, 162. [25] Simpson. [26] Sir W. Dugdale, 758.

England and Wales—*continued*.

Place.	Name.	Founder.	Date.
*Dartford,[1] Kent, 1	Trinity or St. Mary Magdalene	Henry VI	1330.
Devizes,[2] Wilts			1207.
Dorchester[3]	(10 beds)		
Doncaster,[4] Yorkshire	St. James		1272.
Dunwich,[5] Suffolk	St. James		1199.
Dunstable,[6] Bedfordshire		Prior of Dunstable	xiii.
Dover,[7]	St. Bartholomew		1141.
Dunstane,[8] Lincolnshire			xiii.
*†Exeter,[9] (Fair)	St. Mary Magdalene (13)		1163.
East Harnham,[10] Wilts			
Eye,[11] Suffolk	St. Mary Magdalene		1329.
Fngglestone (Wilts)[28]		Adelicia	xii.
Gild Martyn,[12] Devonshire	St. Leonard		xiv.
*Gloucester,[13] 2	St. Margaret, St. Mary Magdalene	Prior of Llanthony	xii.
Grimsbury,[14] Northampton	St. Leonard's		John.
Gorleston,[15] Suffolk			1372.
Hardwick,[16] Norfolk	St. Lawrence		1327.
Hedon,[17] Yorkshire	St. Sepulchre		1200.
*Havering,[18] Essex			1154.
Hereford,[19]	St. Giles (? Duncomb).		
Herting,[20] Sussex	St. John the Baptist		1189.
*Herbaldoune,[21] Kent	(30 beds)	Archbishop of Canterbury	1154.
Hexham,[22] Northumberland			1210.
Honiton,[23] Devonshire, 2	St. Martin, St. Margaret	Thomas Charde	1530.
Hythe,[24] Kent, 2	St. Bartholomew's, St. John's		1336.
Huntingdon,[25]	St. Margaret's		1165.
Hoddesdon,[26] 1	St. Landus and St. Anthony		1391.
Ickborough,[27] Norfolk	St. Mary		xiii.

* Indicates Charter or Royal Patronage.

† There were many smaller houses for lepers within the Diocese of Exeter ('Arch. Ass. Journal,' 'Monastic. Dioc. Exon.').

[1] Sir W. Dugdale, 763. [2] Simpson. [3] Tanner. [4] Miller, 'Hist. of Doncaster,' 40. [5] Thos. Dugdale, vol. iii. [6] Lysons, 76. [7] Tanner. [8] Tanner. [9] Hals, MSS., Brice, 548. [10] Hoares, 'Wiltshire.' [11] 'Index Monas. Dioc. Norwich.' [12] Pettigrew, vol. ii, 95. [13] Bigland, 'Hist. of Gloucester.' [14] Baker, 584. [15] Simpson. [16] Simpson. [17] Sir W. Dugdale, 654. [18] 'Monastic. Anglican.,' 162. [19] Duncomb, 'Hist. of Hereford.' [20] Simpson. [21] Somner, 80. [22] Tanner. [23] Lysons, vol. vi, 283. [24] Thomas Dugdale, vol. v. [25] H. D. Traill, 'Social England,' 367. [26] Sir W. Dugdale, 762. [27] 'Index Monast. Dioc. Norwich.' [28] 'Notes and Queries,' seventh series, viii, 278.

ENGLAND AND WALES—*continued.*

PLACE.	NAME.	FOUNDER.	DATE.
Ipswich,[1] Suffolk	St. Mary Magdalene		1199.
Ilchester,[2]			xiv.
*Ilford,[3] Essex	St. Thomas (13)	Adelicia	xii.
Knightsbridge,[4] Middlesex			
Kirkby,[5] Westmoreland	St. Leonard's.		
Kingston,[6] Surrey			1316.
Kingswood (Wilts)[24]			
*Kendal,[7]			xiii.
Lancaster,[8]	St. Leonard's		1190.
Langwade,[9] Norfolk			1320.
Langport,[10] Somersetshire	St. Mary Magdalene		1310.
Launceston,[11] Cornwall, 2	St. Leonard's, St. Thomas.		
Leicester,[12]	St. Leonard's	William Blanckmains	1199.
Leeklade,[13] Gloucestershire			1246.
*Little Maldon,[14] Essex	St. Giles	Edward II.	1323.
*Lincoln,[15] 2	Holy Innocents, St. Giles (10)	Remegius, Bishop of London, and Henry I.	1100.
*London,[16] 7	St. Giles (40)	Matilda, Queen of Henry I.	1101.
	Highgate		1472.
	Stratford.		
	Kingsland.		
	Shoreditch.		
	Southwark.		
	Westminster (14) (Fair)		1066.
Long Blandford,[17] Dorset			1282.
Lokhay,[18] Derbyshire	St. Mary Magdalene,		
Low Cross,[19] Yorkshire	St. Leonard's.		
Lynne,[20] Dorset	St. Mary Magdalene		1336.
*Lynn,[21] Norfolk, 5	St. Mary Magdalene	Petrus Capellanus	1145.
	St. John's.		
	West Lynn		1432.
	Cowgate		1432.
	Stetch-hithe		1482.
Mere,[22] Lincolnshire			1246.
Minehead,[23] near Liskeard	St. Mary Magdalene		1400.

* Indicates Charter or Royal Patronage.

[1] 'Index Monast. Dioc. Norwich.' [2] H. D. Traill. [3] Sir W. Dugdale, 628. [4] Sir W. Dugdale, 766. [5] Simpson. [6] Manning and Bray, 'History and Antiq. of Surrey.' [7] Sir W. Dugdale, 162. [8] Sir W. Dugdale, 765. [9] Simpson. [10] Simpson. [11] Carew, 'Survey of Cornwall,' 186. [12] Sir W. Dugdale, 686. [13] Tanner. [14] 'Monastic. Anglic.,' vol. iii, pt. i., 93. [15] Cookson, 'Lincoln Topog. Society.' [16] Parton, 'History of St. Giles;' Speed, 'History of Great Britain,' &c. [17] Sir W. Dugdale, 759. [18] Tanner. [19] Pettigrew, vol. ii, 95. [20] Sir W. Dugdale, 759. [21] Mackenell, 'History of Lynn.' [22] Tanner. [23] Carew. [24] 'Notes and Queries,' seventh series, viii, 278.

England and Wales—*continued.*

Place.	Name.	Founder.	Date.
*Maiden Bradley,[1] Wiltshire	Virgin Mary	Manser Biset	1145.
Nantwich,[2] Cheshire	St. Lawrence.		
Newport,[3] Hampshire	St. Augustine.		
*Norwich,[4] 6 (Fair)	St. Mary Magdalene		1119.
	St. Mary and St. Clement		1370.
	St. Giles' Gate		1249.
	Without St. Magdalen's Gate		1370.
	Without St. Bennet's Gate		1370.
	Without St. Stephen's Gate		1370.
Newport,[5] near Launceston,	St. Thomas.		
Northampton,[6]	St. Leonard's		xi.
Nottingham,[24]	"West Barre"		
*Newton Bushell[7]			1538.
Newbridge,[8]	St. Mary and St. Lawrence		1373.
Newcastle,	St. Mary Magdalene		1112.
Newport Pagnell,[10]			1240.
Otford,[11] Kent			1229.
Ospringe,[12] Kent	Maison Dieu		1335.
Otley,[13] Yorkshire			1327.
*Oxford[14]	St. Bartholomew, 12	Henry I.	xii.
Ongar[15]	St. Oliver.		
Peterborough, Northampton	St. Leonard's		1150.
Pilton,[16] Devon	St. Margaret		1197.
Plymouth,[17] Devon.	St. Mary Magdalene		1374.
Plympton,[18] Devon			1370.
Pontefract,[19] Yorkshire	St. Mary Magdalene		1286.
Racheness,[20] Norfolk	St. Bartholomew		1189.
Reading,[21] 2	St. Mary Magdalene	Aucherius, ii Abbot of Reading	1134.
	"The Leper Hospital" (13)	Hugh, Bishop of Reading	1180.
*Ripon,[22] Yorkshire	St. Mary Magdalene (18)	Archbishop Thurston	1139.
*Rochester,[23] Kent, 2	St. Catherine's	Simon Potyn	1316.
	St. Bartholomew		1216.

* Indicates Charter or Royal Patronage.

[1] Hoare's 'Wiltshire.' [2] 'Lichfield Register.' [3] T. W. Shore. [4] Blomefield, 'History of Norfolk.' [5] Sir W. Dugdale, 757. [6] Brigges, 'History of Northampton.' [7] Camden, 'Leicestershire.' [8] Pettigrew, vol. ii, 95. [9] Sykes, 'Historical Register.' [10] Tanner. [11] Sir W. Dugdale, 763. [12] Philpot, 'History of Ospring.' [13] Simpson. [14] Gardner, 'History of Oxford.' [15] H. P. Wright. [16] 'Soc. of Antiquit.,' Ineledon. [17] Lysons, vol. vi. [18] Lysons, vol. vi. [19] Sir W. Dugdale, 781. [20] Simpson. [21] Lysons, p. 348. [22] Sir W. Dugdale, 620. [23] Speed. [24] 'Notes and Queries,' seventh series, viii, 278.

ENGLAND AND WALES—*continued.*

PLACE.	NAME.	FOUNDER.	DATE.
Romney,[1] Kent	St. Stephen and St. Thomas	Adam de Cherryng	Baldwin, Archbishop of Canterbury, 1190?
Ruddlan,[2] South Wales.			
Seaford,[3] Sussex	St. James	Rogerus de Fraxeto, Walter de Luey	1171.
Sedburbrook,[4] Essex	St. John the Baptist		1292.
Selwood,[5] Somerset	The "Domus Leprosorum"		1212.
Sudbury[6]	"Jesus Christ and the Virgin"		xiii.
*Sherburn,[7] Durham	The Virgins (65)	Hugh Pudsey, Bishop of Durham	1181.
Stratton-in-Levington.[8]			
Sturbridge,[9] Camb. (Fair)	St. Mary Magdalene		1205.
*Shrewsbury[10]	St. Giles		1136.
Somerton,[11] Norfolk			xii.
Southampton,[12] Hants	St. Mary Magdalene		1179.
*St. Albans,[13] 2	St. Julian's (6)	Jeffreys, vi Abbot of St. Albans	1135.
	De la Praye (for leprous women)	(Annexed)	1528.
St. Roche, Cornwall.			
Stamford,[14] Lincolnshire		(Grosteste?), Bishop of Lincoln	xiii.
Snoring Parva,[15] Norfolk			1380.
Strattan,[16] Norfolk.			
*Tannington,[17] Kent	St. James (25)	Henry II.	1189.
Tavistock,[18] Devon	St. Mary Magdalene.		
Taunton,[19] Somersetshire	St. Margaret's		1280.
Tenby,[20] Pembrokeshire	St. Mary Magdalene.		
Tewkesbury,[21] Gloucestershire.			
Totnes,[22] Devon	St. Mary Magdalene (11).		
Tilton,[23] Leicestershire			xii.

* Indicates Charter or Royal Patronage.

[1] 'Archæolog. Cent.,' vol. xiii, 247. [2] H. P. Wright. [3] Sussex, 'Arch. Soc.,' vol. xxi. [4] Pettigrew, vol. ii, 95. [5] Simpson. [6] Simpson. [7] Surtees, 'Hist. of Durham,' vol. i, 127. [8] Pettigrew, vol. ii, 59. [9] Lysons. [10] Owen and Blakeway, 'Hist. of Shrewsbury.' [11] 'Index Monas. Dioc. Norwich.' [12] T. W. Shore. [13] Speed, 1060. [14] Sir W. Dugdale, 766. [15] Blomefield. [16] 'Index Monastic. Dioc. Norwich.' [17] Somner. [18] Brice, p. 548. [19] Simpson. [20] Simpson. [21] Simpson. [22] Leland, 'Itinerary,' vol. iii, 49. [23] Sir W. Dugdale, 766.

England and Wales—*continued.*

Place.	Name.	Founder.	Date.
*Thetford,[1] Norfolk, 4	St. John's		xiv.
	St. John the Baptist		1216.
	St. Mary Magdalene	Earl of Warren	1216.
	St. Margaret		1390.
Towcester,[2] Northampton	St. Leonard's		1200.
Tweedmouth,[3] Durham	St. Bartholomew's		xii.
Walsingham,[4] Norfolk			1486.
*Wilton,[5] Wiltshire	St. Giles	Queen of Henry I.	1100.
Warwick[6]	St. Michael		xii.
Winchester,[7] Hants.	(On Magdalen Hill)		1259.
Wisbech[8]			1380.
Wigton,[9] Cumberland	St. Leonard's.		
Wycomb,[10] Bucks	St. Giles		1229.
Windsor[11]	St. Peter		1216.
Wymondham,[12] Norfolk			1146.
Yarmouth,[13] Norfolk	(Outside the North Gate)		1374.
*York,[14] 4	St. Giles		1274.
	St. Nicholas	Maud, daughter of Henry I.	1110.
	Monkbridge.		

* Indicates Charter or Royal Patronage.

[1] Thomas Martin, 'History of Thetford,' Worth MS., fol. vi. [2] Simpson. [3] Raine, 'History of North Durham.' [4] Tanner. [5] Tanner. [6] Simpson. [7] T. W. Shore. [8] Watson, 'History of Wisbech,' 139. [9] Sir W. Dugdale, 758. [10] Lipscomb, 'Hist. of Buckinghamshire.' [11] Pettigrew. [12] Sir W. Dugdale, 749. [13] Thomas Dugdale, vol. viii. [14] 'Test. Ebor.,' vols. i, ii.

Scotland.

M. Walcott, 'Anc. Church of Scotland.' Spottiswoode, 'Leper Hospitals in Scotland at the Reformation.' 'Historic Ayrshire,' William Robertson. Sir James Simpson, 'Arch. Essays,' vol. ii. George Chalmers, F.R.S., 'Caledonia,' 4 vols. Sir John Sinclair, 'Statistics,' 1798. 'Voyage to St. Kilda,' Martin, 41. 'Sheriff's Register, Perth.' 'Antiq. of Aberdeen,' ii, 142, &c.

Place.	Name.	Founder.	Date.
Aberdeen			1519.
Aldeambus, Berwick	St. Anne's	Corporation of City	xii.
Aldnestun, Berwick			1170.
*Edinburgh, Midlothian	Greenside	Corporation of City	xv.
	Dingwall Castle		Previously.
Govan	St. Ninian's	Lady Lochow	xiv.
*Glasgow	St. Ninian's	W. Steward	1350.
Haddington			1592.
*Harehope, Peebles		David I.	xii.
*Kingease, Ayr	St. Ninian's (8)	Robert Bruce (?)	1306.
Lerwick, Shetlands			
Ligerswood, Lauderdale		William Alan.	
*Linlithgow (Fair)	St. Mary Magdalene		1214.
Papastour, Shetlands			1740.
Perth			1571.
Rothfan, Elgin	(7 beds)	John Byseth	1226.
St. Kilda			1684.
Stirling	St. James		1463.

* Indicates Charter or Royal Patronage.

Ireland.

Ledwich, 'History of Ireland.' T. W. Belcher, M.D., 'Mediæval Leper Hospitals in Ireland.' Archdall, 'Monasticon Hibernicon,' 1786. Boate's 'Natural History of Ireland.' Simpson, 'Archæolog. Essays,' vol. ii, &c. 'Waterford, Ancient and Present State,' Charles Smith, 1745. 'History of County Down,' &c.

Place.	Name.	Founder.	Date.
Dublin, 3	St. Stephen's		1344.
Armagh			869.
*Waterford	St. Stephen's		1185.
Kilbixy, West Meath	St. Bridget		1192.
Dublin	Lazar's Hill		1220.
Wexford, 2	St. Mary Magdalene		1408.
	David Le Latimer's Hospital.		
*Lismore, Limerick	St. Bridget		1467.
Galway	St. Bridget		1543.
Dungarvon, Co. Waterford	St. Bridget.		
Downpatrick	St. Nicholas		1415.
Kilclief, Co. Down	St. Peter's		1387.
Cork, 4	St. Stephen's		1295.
	St. Mary Magdalene		
	St. Dominic.		
	St. Brandon.		
Cloyne			
Trim			1440.
Leperstowne, near Dublin.			
Palmerstown.			

* Royal Patronage or Charter.

APPENDIX.

Note 1.

MEDICORUM REGIS SUPER MORBO LEPRÆ, CERTIFICATIO. (Copied.)

A.D. 1468. Ann. 8. Edw. IV. Excellentissimo et serenissimo in Christo Principii et Domino Edwardo, Dei gratiâ, Regi Angliæ et Franciæ et Domino Hiberniæ, Nos, humilium oralores vestri Willielmus Hatteclyffe, Rogerus Marchall et Dominicus de Serego Artium et Medicinæ Doctores, vestri medici et personæ; vestræ lutetam imati debitam revereptiam cum humilitate et honore: Cum nuper in Cancellaria vestra vobis supplicaretur de amovendo a communi hominum consortio Johannam Nightyngale de Brentwode in comitatu Essexiæ, eo quod præsumeretur per quosdam ex vicinis sius ipsam fœda lepræ contagione infectam et de facto leprosam existere: Propter quod quoddam breve vestram tunc ibid. confectum et superindo vice comiti comitâtus prædicti directum fuit in hoec verba: Quia accepimus quod J. N. leprosa existit et inter homines comitâtus prædicta communiter conversatur et cum eio tam in locis publicis quam privatio communicat et ved ad locum solitarium pront moris est et ad ipsam pertineret, transferre recusat ad grave dampnum hominum predictorum et propter contag. morbi predicti periculum manifestum: Nos hujusmodi periculum pront ad nos pertinet præcavendum et super trœmissis quodjustum est et usitatum sieri volentes: tibi prœcipimus quod assumptis tecum aliquibus discretio et legalibus hominibus de comitatu predicto non suspecto qui de persona predictæ J. et de hujusmodi morbo notitiam

habent meliorem et ad ipsam J. accedas et ipsam in præsentia predictorum hominum facias diligenter videri et examinari: Et, si ipsam leprosam esse inveneris et predictum est tunc ipsam honestiori modo quo poteris a communicatione hominum predictorum amoveri et si ad locum solatiarum ad habitandum ibid. pront moris est transferre facias in dilate, ne per hujusmodi commun. conversationem suam hominibus predictis dampnum vel periculum eveniet quovismodo: teste meipso apud Westmonasterium decimo die juli ann. reg. nostri octavo, super quo prefata J. antequam prefatus vicecomes executionem brevis predicti fœcerat, notitiam inde habeus in cancellariam vestram predictam pro remedio et relevio suo in hoc parte habendo veniebat: quo pretextu, rev. in Christo pater et dominus Robertus, Dei gratiâ, Balhoniensis et Wellensis Episcopus, cancellarius vester anglicæ, nos superinde consuliet, eadem que J. nobis decrevit deber presentari ea potissimum intentione, ut, juxta quid ex scientia medicinæ precepimus vestram celsitadinum in cancellariam predictum redderemus certiorem an ipsa eadem J. de facto leprosa esset necue: Nos itaque vestræ celsitudini morem genere cupientes, ut super isto clarissima veritas eidem patisieri posset et deberet in hunc modum processimus; Primum de persona sua consideravimus et juxta quod antiquiores et sapientissimi, medicinæ auctores in hujusmodi casibus faciendum docuerant, ipsam tractavimus et palpavimus, per signa hujusmodi morbi declarativa, discursum fœcimus si in ea reperirentur mature diligenter et pront oportuit inquisivimus, inspectis que et consideratis singulis quæ nobis, pro elicienda vera notitia hujus ambiqui, inspicienda et consideranda videbantur debetantque videri invenimus ipsam mulierem nequa quam fuisse aut esse leprosam neque ex ea causa a communis hominum consortio segregandum: Docemur equidam ex scientiâ medicinati morbum lepræ in communi per plurima vigna, item, unamquamque ejus morbi speciem—quæ quatuor sunt Alopecia, Tiria, Leonina, et Elefantia, per aliqua signa debere cognosci et discerni unamqua ab alia specificæ distingui: Itaque, in hoc casu mulieris nobis oblati per viginti et ultra signi lepræ in communi famosiora discurrentes non invenimus ipsam ex illis anteorundem sufficienti numero posse

convinci leprosam: et hoc quidem generaliter proliterando ipsam a dicta præsumptione sufficeret cum non sit possibile lepræ morbo quem. laborare in quo non milita pars hujusmodo signorum reperiatur: cœterum et ut de singulio speciebus feramus sententiam per quadraginta et ultra speciorem lepra signa distinctiva transeuntes non reperimus ipsam mulierem ex aliqua quatuor specierum lepræ notandam sed ab omni specie lepræ liberam prorsus et immunem quem ad modem et vestræ celsitudini vivis vocibus in cancellariam vestram predicta significavimus paratique sumus idem per processum scientificum si et quando, erit opus eidem vestræ celsitudini plenius declarare certificamus itaque vobis in cancellariam vestram predictam quod mulier sepedicta J. N., nobis presentata per nos inspecta visitata et in hoc casu juxta rei exegentiam, in omnibus ut congruum erat, tractata, inventa est sana, libera nulla penitus specie leprosæ contagionis infecta: In quorum omnium fidem et testimonum nos dicti W. Hatteclyff, R. Marchall, et D. de Serego, manibus nostris proprius nos ipsos presentibus inscripsimus et sigilla nostra alternatim apposuimus:

Dat. primo, die novembris, anno regni, Regis Edward Quarti post conquestum angliæ octavo:

Et memorandum quod predicti, W. Hatteclyff, Rogerus Marchall et Dominicus de Serego venerunt in Cancellarium regis, apud Westmonasterium, septimo dei novembris, anno presenti et recognoverunt scriptum predictum et omnia contenta in eodem in forma predicta.

Note 2.

Episcopal Register of Lincoln.

"Vacante ecclesia de Seyton per remocionem Thoma de Bella fago nuper Rectoris Ejusdem ab administracionis officio quod gerebat in ea contra eum eo quod lepre macula adeo respersus extitit et infectus quod communioni fidelium seu conspectui se presentare nequivit propter scandalum et horrorem per Espiscopum diffinitive servato processu qui requiritur promulgatam cujus tenor inferius Continetur

Johannes de Bella fago Magistrum Willelmum de Bella fago ad dictam ecclesiam Episcopo presentavit, &c., iii Non. Aprilis A.D. M.CCC. Decimo apud Nettelham."

Note 3.

"He looked on her ugly lepers face,
The which before was white as lely floure,
Wringing his hands."
Chaucer (1348—1400), 'The Complaint of Creseide,' p. 297.

"Lying among leper-folke, alas!"
Ibid.

"A leper lady rose, and to her wend."
Ibid.

"And soone a leaper-man took off the ring."
Ibid., p. 298.

"And he was in his lustie age,
The lepre eaught in his visage."
Gower (1330—1408), 'Confessio Amantis,' bk. ii, p. 69.

"In the porches of mine eares did poure
The leprous distilment."
Shakespeare (1564—1616), 'Hamlet,' fol. 258.

"By thee the silly amorous sueks his death,
By drawing in a leprous harlot's breath."
Donne (1573—1631), 'The Perfume,' Elegy 4.

ON THE

CONDITIONS UNDER WHICH LEPROSY HAS DECLINED IN ICELAND,

AND THE

EXTENT OF ITS FORMER AND PRESENT PREVALENCE.

BY

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Arctic Circle
Grimsey
HORN (North Cape)
ÍSAFJARDARDJÚP
Staör
ÍSAFJÖRÐR
DYRAFJÖRÐR
Mýrar
ARNARFJÖRÐR
Tálknafjörðr
Haga
Saurbær
Hvallátr
Flatey
Akreyjar
BREIÐI FJÖRÐR
Bjarneyjar
STYKKISHÓLMR
Helgafell
Snókadalr
ÓLAFSVÍK
Setberg
Stapi
Borg
BORGAR FJÖRÐR
Akranes
HVAL FJÖRÐR
REYKJAVÍK
Kirkjuvogr
Reykjanes
Staör
Eyrarbakki
Arnarbæli
Ölfusa
Þórsá
Hagi
HEKLA
Oddi
Móðalr
Reykjarfjörðr
KÚVÍKR
HÚNAFLÓI
SKAGASTRÖND
Mælifell
HOLAR
Möðruvellir
AKUREYRI
Eyjafjarðará
EYJAFJÖRÐR
HÚSAVÍK
REYKJAHLÍÐ
Langanes
VOPNAFJÖRÐR
SEYÐISFJÖRÐR
DJÚPAVOGR
Bjarnanes
Kaupstaðr
VESTMANNAEYJAR
Portland
MAP OF ICELAND
Dr Ehlers Expedition
Tuberous lepers
Anæsthetic lepers
Dr Ehlers Itinerary
West, Newman, lith.

The longitude in the accompanying reproduction of the map of Iceland is calculated on the English system, from Greenwich. That alluded to in Dr. Ehler's text is calculated from Copenhagen. To make them agree add 12° 35′ to longitude shown on the map.

CONDITIONS UNDER WHICH LEPROSY HAS DECLINED IN ICELAND.

History.

In the Icelandic language leprosy has received various names, among which Holdsveiki, *i. e.* disease of the flesh, seems to be the most recent. The older names are likthrár (derived from lik, a corpse, and thrár, rancid), employed for the tuberous form, and limafallssyki (the limbs-falling-off disease), which expresses the anæsthetic form.

It cannot be decided with certainty at what period leprosy first made its appearance in the island. The vice-superintendent Eggert-Olafsen, and the physician Bjarne Povelsen,[1] who, during the years 1752–57, as students traversed Iceland, were of the opinion that the disease "was as old as the inhabitants themselves, who probably had brought it from Norway."

Dr. Gislasen, an Icelander, who was physician at Drammen (Norway), and as such wrote his thesis for the diploma of doctor, upon leprosy,[2] was, however, of the opinion that the disease was first brought to Norway about the end of the thirteenth century, probably from the Crusades.

Gislasen did not think that any positive proof could be given of the existence of the disease previous to a Testamentum by King Magnus Lagabæter in the year 1277,[3] in

[1] 'Voyage through Iceland,' vol. ii, Soröe, 1772, p. 325 (Danish).

[2] 'De Elephantiasi Norvegica,' Hauniæ, 1785.

[3] Ed. Hafniæ, 1719, p. 14.

which it is said: "Item ad Ospitale Catharinæ Leprosorum Bergis centum marcas sterlingorum contulimus." Hjaltelin,[1] on the contrary, adopts the opinion of Olafsen and Povelsen, and declares that the disease is mentioned here and there in the old legends. He points out some such cases, to which I, with the help of the dictionaries of the old Norse language, am able to add a few.

We are only concerned with the word likthrár; the other expressions, holdsveiki and limafallssyki, are not to be found in the legends, and no trace of the disease exists before the twelfth and thirteenth centuries.

No doubt, in the legend concerning Olaf Tryggvason,[2] the action of which takes place before the year 1000, a story about a man, by name Thorhal Knapp, from Knapstad in Fljot, is mentioned: "he was a man of good and pure morals, though a heathen, but much suffering and afflicted by leprosy." One night he dreamed that King Olaf stood before him, and counselled him to build a church, and construct it of the timber of his old sacrificial temple, then he would be cured. Of course the man did it; and the old gods, who now were homeless, became so angry, that they, in moving away, killed a jade belonging to a woman, who, though quite innocent, "was very active and versed in witchcraft." But the leprous man "day by day got better, and recovered his strength." Next year he adopted the Christian faith, "and then he first was perfectly cured, on the day he was baptised." It is a matter of course that this myth never can prove that leprosy was known before the battle of Svold, year 1000, but only that the writer knew the name of the disease.

Gislasen is inclined to believe that Gúnnlög, a monk, who wrote this legend two hundred years afterwards, "in accordance with monastic custom, adorned the life of the sainted king with this miracle, rather than tell the truth."

In the Ljos-vetninga saga[3] another leprous patient is mentioned; but he has nothing to do with the story.

[1] 'Leprosy, with Special Reference to its Appearance in Iceland,' Copenhagen, 1843 (Danish).

[2] 'Fornmanna sögur,' vol. ii, Copenh., 1826, chap. 227, p. 229 (Icelandic).

[3] 'Ljos vetninga Saga,' Copenh., 1830, p. 98 (Icelandic).

This saga, which refers to Iceland, was most probably written in the last half of the twelfth century, "after Ketill had been created a bishop." He was bishop from 1122 to 1145.

In 'Konge spejlet'[1] (speculum regale-konungs skuggsjá), a philosophico-didactical treatise which appeared in Norway towards the end of the twelfth, or at least not later than the beginning of the thirteenth century, the word likthrár is used at page 37 referring to the disease of Job, and at page 32 it is mentioned that the sperm of a whale called red whale (probably spermaceti), "is good for the cure of disease of the eyes, leprosy, tremor, headaches, and all sickness that may befall men."[2]

The earlier Gulathingslov, 298/5[3] freed all lepers from war contribution. Conrad Maurer[4] dates the origin of this law to the beginning of the thirteenth century.

Finally the disease is mentioned in the legend of "Sturlög" the industrious: a person named Framar demands and gets from three sorcerers the power to make himself leprous and well again whenever he pleased. Rafn[5] (in his preface to the edition) supposes this legend to have been composed in the thirteenth and fourteenth centuries.

Neither as regards Norway, Denmark, nor Iceland can leprosy thus be traced with certainty further back than the end of the twelfth century.

The supposition of Olafsen, Povelsen and Hjaltelin, that

[1] The Christiania edition, 1848.

[2] The therapeutic value of spermaceti against leprosy gives very favourable evidence regarding the knowledge of the writer of the 'Kongespejl.,' as it is much to be preferred to the ignorant and "miraculous" treatment employed during the fourteenth century. Thanks to the assistant librarian, Dr. Verner Dahlerup, who has given me several useful hints and much good advice, I am able to cite the following example:—In a Danish medical book of the fourteenth century (the 'Arnamagnæanic Manuscript,' No. 187, 8vo, edited by Saaby) it is recommended to smear persons attacked with "spytæls sot" with the blood of a male goat. At another place it is said: "If you have got the disease (leprosy), take some ants and the ant-hill, put it in your bath, and you will be cured."

[3] 'Old Laws of Norway up to 1837,' vol. I, p. 97 (Icelandic).

[4] 'The History of the Original Texts of North German Laws' (Danish).

[5] 'Fornaldar sögur,' vol. iii, p. 642, chap. xxv (Icelandic).

leprosy was known in Iceland before the commencement of the Crusades, must therefore be said to want any solid foundation.

Iceland got its first inhabitants from Norway, and most probably its first case of leprosy from the same place: that is all that can be said; the exact time cannot be fixed, with regard specially to Iceland. The greatest probability points to the end of the twelfth century.

Towards the middle of the sixteenth century, leprosy seems to have obtained more hold of the island, and to have become so extensive that a dread was created in the hearts of the Icelanders, which is so touchingly manifested in the report of Gislasen about this period. He says that they never mentioned the name of the disease without at the same time adding, "May God in His mercy save us!"

As early as in the year 1555, the authorities of the island, together with the chief officer, Knud Steensen, made preparations[1] for the erection of four leper asylums, but the proposal was first realised by a royal edict of the 10th of May, 1651, which decided upon the erection of an hospital in each quarter of the island.

These hospitals were supported in the following way:— All the fishermen round the country were appointed to meet on a certain day during the fishing season, on which day they had to give up a certain proportion of their catch, unless it amounted to less than five good-sized cod, or their equivalent, the hospitals then receiving their share next day. Following this rule, the catch was divided into eight parts instead of the usual seven, and one of these was due to the hospitals. The bishop and the superintendents of each county were inspectors, while well-known and honourable men were elected superintendents of the hospitals. They lived on adjacent farms, and had to provide the patients with what was necessary, and to render an account of the income.

The four hospitals were: in the western division, Hallbjarnareyra, in Öresvejten (a farm in the district of Snefjell); in the northern division, on Madrefell, in the district of Öfjord; for the eastern part, on Horgsland; that for the

[1] 'The Voyage of Olafsen and Povelsen,' vol. i, p. 325.

southern part was situated at Klösterhole in Grimsnes, until the year 1750, when it was moved to Kaldadernæs, at Floen, a short distance from the harbour of Örebakke.

This installation of the hospitals, with everything necessary for their support, their "inspectors" and "honourable men," looks certainly very nice on paper, but if we follow the reports of Hjaltelin,[1] the impression left is not so favourable.

He visited the two largest of them, those of Kaldadernæs and Hallbjarnareyra, and he was bound to admit "that these miserable huts were more like pigsties and cow-houses, to say the least of them, than sick-chambers. The stink and filth were so abominable, that only those accustomed to such dirt could stand a prolonged stay there without being themselves sick, and these hospitals were only a sad example of how the Icelanders stood as regards their medical institutions, and of how patiently they suffered in their passion for tradition, endeavouring in this instance to maintain the institutions of the Middle Ages."

The great smallpox epidemic in Iceland in 1707, which destroyed more than one third of the population, made away with the greater part of the leprous families. How many there were in the eighteenth century I have not been able to discover; but as regards the year 1768 their total is, in a letter to Johs. Petersen,[2] calculated to be upwards of 280. This number was further diminished by the very sensible law of the 28th of March, 1776, which put a stop to marriage between lepers.[3]

Lepers in Iceland, as elsewhere, appear at this time to have been isolated from intercourse with the rest of the population. Thus Johannes Petersen (l. c., page 42), who considers the disease contagious, says: "it is not sufficient that these miserable beings are tormented by the disease, but, like the impure of the Old Testament, they are shunned and abhorred by most people, and this isolation of course makes them still more wretched."

[1] Loc. cit., p. 43.

[2] 'The so-called Icelandic scorbutus,' Sorö, 1769, p. 9 (Danish).

[3] Further enjoined by a law of December 7th, 1827, and by a circular from the Department of Justice, May 30th, 1848.

It is only since the beginning of this century that a register of mortality has been kept in Iceland, thus enabling one to ascertain the number of lepers. Hjaltelin,[1] with regard to the years 1802–37, calculated the number of deaths from leprosy and scorbutus together, because these two maladies, following the doctrine of Boerhaave as to leprosy being the last phase of scorbutus, were amalgamated. Hjaltelin was of the opinion that there is much reason to believe that the greater number of those registered as having died from scorbutus really died from leprosy.

The total number of lepers who died during the years 1800–37 inclusive would then amount to 707, which for these thirty-seven years (there is no report for the year 1824) gives a yearly average of 19·3; and as hardly any Icelander, according to Hjaltelin, could be deceived with regard to the disease in its last stage, he guarantees that the mortality has been nowhere calculated too high.

The number of deaths from leprosy and scorbutus together during the same period amounts to 943; this gives an average of 26·19.

In 1837 the Bishop St. Johnsen ordered his clergy to make a report of the number of lepers found in their respective parishes; the result was 128 (68 men and 60 women). But Hjaltelin justly criticises this summing-up as being very deficient and imperfect, as, firstly, it is not to be expected that clergymen "not skilled in medicine, should be able to recognise the disease before its more advanced stage; and, secondly, in consonance with Icelandic usage, it is only customary to call those persons lepers who are suffering from Lepra nodosa, while those afflicted with Lepra squamosa or Psoriasis leprodes seldom, or at least only at a few places, are regarded as leprous." As a fact he found this report so defective, that in one parish where the number of lepers according to the report was stated to be 13, he met with 22 leprous patients, all of whom had been affected when the clergyman was collecting his statistics.

He (Hjaltelin) estimated the number of lepers on the

[1] Loc. cit., p. 39.

island to be 289, at which number he arrived by multiplying the average of the yearly number of deceased by 8, which last number he considers the average duration of the leprous disease. Hjaltelin supposed the disease to be increasing in this time.

During the great measles epidemic in 1846, great numbers of lepers died, and the number of survivors was calculated to be only 66, of whom one third lived in the district of Gullbringe (see 'The Voyage of Schleisner').[1]

As leprosy was considered now to be decreasing all over the country, the miserable hospitals were abolished, according to a royal mandate of the 23rd of August, 1848.

During the year 1872, the lepers were again counted by the clergy[2] in 151 parishes (the whole island consists of 184 parishes). Altogether 43 leprous patients were found, out of whom 36 presented the tuberous form, 7 the anæsthetic. These last-mentioned, with one exception, all belonged to the district of Gullbringe.

The apportionment was: in the southern division 19, in the western division 13, in the northern division 11, in the eastern division 0.

The population of Iceland in 1870 was 69,763 inhabitants. With regard to these statistics, the same objection, no doubt, may be urged as Hjaltelin pleaded against Bishop St. Johnsen's.

Finsen[3] in nine years observed 22 cases in his own districts (those of Öfjord and Thingö), where Schleisner (1847) only counted 2. It is, however, evident from his notes that a comparatively great number of these cases originated in other districts; thus 6 out of 14 cases he observed during the period 1857–61 (both years inclusive); nevertheless sufficient remain to make one believe that the reckoning of Schleisner was incorrect, or, as Finsen expresses himself, "that the disease at this time was more frequent than at the time when Schleisner made his observations."

[1] 'Iceland from a Medical View' (Danish), Copenhagen, 1847.

[2] 'The Annual Report of the Board of Health,' 1873, p. 374 (Danish).

[3] 'Observations regarding Maladies in Iceland:' a thesis for the diploma of M.D. Copenhagen, 1874, p. 53 (Danish).

Finally, in 1869 the number of lepers was stated to be 48, in a report from the land physician.

The Apportionment of Lepers on Iceland according to Districts.

	1746	1847	1872	1889
East Skaptafell	—	8		1
West „	—			—
Rangárvalla	—	16		1
(Westmannaeyar)	—			3
Árnæs	—	—	19	7
Gullbringe	—	22		—
Kjósar	—	—		14
Reikiavik	—	—		—
Borgarfjord	23	—		2
Myra	—	9		—
Hnappadal	—			—
Snæfellsnæs	—			9
Dala	—			—
Bardestrand	—	10	13	—
North Isafjord	—			1
South „	—			4
Strande	—			—
Hunavatn	—			—
Skagefjord	1	1	11	1
Öfjord	—	1		—
South Thingö	—	2		1
North „	—	—		3
North Mule	—	—		—
South „	—	—		—

As leprosy according to the above schema is now apportioned on Iceland, so probably was it also in olden days.

A glance at the map of Iceland shows that out of forty-seven cases, thirty-five (consequently almost three-fourths of all the cases) are met with on the south-western coast of the island, where Snefjellsnæs in the north and the peninsula of Gullbringe with the adjoining Arnæs in the south enclose the Gulf of Faxö, whose coast consists of the two districts, Kjosar and Borgarfjord.

In the frequently mentioned travels of Eggert Olafsen and Bjarne Povelsen, I have found the following statements:

(Page 176. The District of Borgarfjord.)—"Leprosy is not nearly so common here as in the southern districts; nay,

it is even rarely met with among persons born at the place. Upon the whole, one does not see so much of it up country as near the shore."

(Page 323. The District of Snefjældsnæs.)—"Leprosy is here more common than at Borgarfjord, and is said to have been formerly still more frequent."

(Page 449. The Districts of Dala, Bardestrand, Isafjord and Strande.)—"One would think that leprosy was mostly found along the Westfjords; nevertheless only very few are seriously affected with this disease. Scorbutus, on the contrary, attacks the feet of all persons more than forty years old. The head, too, is affected with eruptions, and swellings of the gum are common; the teeth rarely become loose, and very seldom real toothache accompanies the disease."

"Loss of sensation is very frequent, and is noticed by those who are operated upon; as they tell you, they only feel very little pain."

"They generally complain of heaviness throughout the body, and quick movements do not at all agree with them."

(Page 695. The Northern Districts of Iceland.)—"Neither leprosy nor scorbutus is nearly so common as on the south and west sides of the island. The hospital for lepers on the Northland is situated at Madrefjell, in the district of Öfjord, and for many years only one, or at most two patients have been found there at a time; sometimes there are none at all."

(Page 820. The Eastern Districts of Iceland.)—"Leprosy is by no means frequent here, as the hospital at Horgsland in 1756 contained only two patients. The disease is, however, more frequently met with in the northern part of the District of Mule. The patients are very seldom sent to the hospital, as it lies so far away, and the road is very impassable."

(Page 961. The Districts of Rangaarvalle, Aarnæs, and Gullbringe.)—"Leprosy is here very frequent, and even persons of quality are not exempted from the disease."

The reason why the south-western part of the country is that most frequently attacked seems to me without doubt to be that

it is the district into which the disease was imported,[1] and has been able to take firm root among the poor population, consisting of fisher-folks. This part of the island, the richest and most thickly populated of Iceland, is of course at the same time its weak point—its *locus minoris resistentiæ*.

Against this weak point, all the plagues that at different times have assailed this unfortunate island have directed their chief force. Here is the greatest traffic with foreigners, as well as almost all commercial communication with other countries.

It was on the Westman Isles that barbarous pirates in 1627 ravaged the coast; partly murdered, partly carried off to slavery the poor fishermen from their barren cliffs, and killed their minister, Ion Thorstensen, who so far met with the happier fate, that he after his death was considered a saint.

In the southern part, too, it was that "the great epidemic" in 1493 began, by which most probably is meant the "plague."

The two great measles epidemics, the first in 1644, which was imported by the Örebakke ship (lying at Arnæs), and the second, which commenced the 3rd of April, 1846, and at the same time spread from Havnefjord in the southern, and Skagestrand in the northern part of the island, also chose this way.

The great scarlet fever epidemic of 1797 began on Westman Island; the next, in 1827, in the southern districts.

Whooping-cough attacked the southern part in 1825 and 1839. The dreadful smallpox epidemic of 1707 made its first appearance at Örebakke. As this epidemic, which killed 18,000 out of the population, possesses a special importance for leprosy on Iceland, I shall report what Schleisner[2] says about it.

An Icelander had been abroad, and died during the winter from smallpox. In spring his clothes were brought on shore at Örebakke, and among these a chest filled with linen. His sister put on one of his shirts, and contracted

[1] Most likely the reason why leprosy is so much more frequent in the vicinity of Bergen in Norway.

[2] Loc. cit., p. 61.

smallpox; in this way the disease spread all over the country. Thirty-four years had elapsed since the previous smallpox epidemic. Several old people who in former days had suffered from the disease caught it again, while most of the young persons, especially men, were attacked. Women were occasionally obliged to carry their dead to the church. The bishop had to saddle his horse himself, and to ride out alone. Twelve thousand persons are said to have died in the diocese of Skalholt, and 6000 in the northern districts, making altogether 18,000, thus leaving only about 34,000 inhabitants. The majority of the lepers died on this occasion, and, besides these, most of the old persons and the pregnant women.

Syphilis, which, as well as other venereal diseases, is not endemic in Iceland, has a few times got on shore at Reykiavik; the epidemic which in 1528 was called sárasott is most probably to be explained as syphilis; at all events, the epidemic in 1756, which started in the wool manufactory in Reykiavik, gave rise to that place being called the "Franzos manufactory."

Thus the south-western corner of Iceland has always been the locality which was first and most severely attacked by epidemics.

It has been very difficult for me to get information about the relative proportions between the different forms of leprosy—the smooth and the tuberous—in Iceland. Of course both forms are known there, Limafallssyki being the anæsthetic form, Likprár the tuberous.

Thorstensen[1] describes three forms:

(1) Lepra genuina scorbutica, which seems to be essentially a tuberous form;

(2) Lepra decidua seu rheumatica = Limafallssyki, the anæsthetic form, as is to be perceived from the description;[2] and—

[1] "Tractatus de Morbis in Islandia frequentissimis, auctore Joh. Thorstensen," 1837. 'Mém. de l'Acad. Royale de Méd.,' Paris, 1840, p. 47.

[2] Incipit talis morbus cum insensibilitate ultimæ extremitatis, sine ullo tumore, sed dolore ardente, supra membrum insensibile, quo loco ulcus aperitur et ultimum os ejusdem membri una cum adjacentibus partibus exsolvitur. Gradus insensibilitatis tantus est, ut si necesse

(3) Lepra arabica seu elephantina, of which Thorstensen only saw two cases in Iceland, and one in Denmark in 1819.

Hjaltelin, who gives a good description of what he calls lepra squamosa, says (p. 103) that almost one half of the lepers in Iceland suffer from this form of the disease.

Out of those examined by Schleisner, eleven men and ten women, twelve suffered from the tuberous form, six from the anæsthetic, three from a combination of the two.

Finsen (l. c., p. 54), who saw twenty-two cases on Iceland, never observed a single case belonging to the smooth form (the districts of Ofjord and Thingö). In the official report of 1872, thirty cases of tuberous form and seven of the anæsthetic are recorded, but of these last mentioned not less than six were found in the district of Gullbringe, where the whole number of lepers was twenty-two.

My Personal Researches.

On the 16th of July we arrived at Reykiavik, and already on the 18th of July we began to traverse Faxebugten (the bay of Faxe). The expedition consisted, besides myself, of the assistant physician to the Garnison's hospital in Copenhagen, C. T. Hansen, who particularly took charge of the photographic work; the medical student Gudmundur Gudmundsson, who acted as an interpreter, and the fishing sorter Ámundi Ámundsson as a guide.

The excursions of the first eight days were made on the steamer "Elin," which surely is not adapted to lodge passengers; but, thanks to the owners, our stay there was made as comfortable as possible, the steamer being also given up to our disposal for extra trips.

On the 24th of July the expedition started for the interior of the Southland, whence we returned on August 5th; August 15th we went on the "Thyra" round the whole island.

The plan of our journey was devised by the renowned polar explorator, Captain Hovgaard, and Doctor Björn Olsen,

esset extremitatem adfectam amputare, aut os fere solutum omnino exscindere talem operationem ægroti non, aut vix non percipiunt. Hæc species rarior est quam lepra genuina.

who lent us perfectly invaluable assistance. The Icelandic press had announced our arrival at the different places ; and the governor of the province, Stephensen, who kindly lent us all help possible, had, by a circular to our Icelandic colleagues, recommended them to assist us. I cannot sufficiently extol the amiability and obligingness which our Icelandic colleagues showed ; several of them met us on horseback at the bound of their district, and also accompanied us out of it again.

By working in common we succeeded in finding and examining altogether 102 leprous patients, of whom we wrote minute stories of their illness, and we photographed the most interesting of them. Besides we obtained detailed informations of about forty-two patients whom we could not visit on account of the enormous distances.

District.	Men.			Women.			Altogether.[1]	
	Tuberous form.	Mixed form.	Anæsthetic form.	Tuberous form.	Mixed form.	Anæsthetic form.		
Myra	1	1	—	—	—	—	2	(0)
Borgarfjord	3	2	2	—	1	1	9	(2)
Gullbringe-Kjosar	2	2	3	2	1	2	12	(14)
Reykiavik	1	1	—	3	—	1	6	
Arnæs	4	—	2	3	1	1	11	(7)
Rangarvalla	4	3	4	5	3	2	21	(4)
V. Skaptafell	1	—	—	1	1	—	3	(0)
Snæfellsnæs	4	—	3	6	—	1	14	(9)
Bardestrand	3	2	—	1	1	2	9	(1)
Isafjord	2	—	2	—	—	3	7	(4)
Dala	2	—	—	1	—	—	3	(0)
Hunavatn	1	—	1	1	—	—	3	(1)
Skagefjord	2	—	1	2	1	2	8	(0)
Öfjord	5	6	4	6	2	2	25	(1)
Thingö	3	1	2	1	1	1	9	(3)
Norder Mule	—	—	—	1	—	—	1	(0)
O. Skaptafell[2]	1	—	—	—	—	—	1	(1)
	39	18	24	34	11	18	144	
	81			63				

[1] The numbers in parentheses are taken from the official accounts of 1889.

[2] The coasts of Öfjord.

From this follows—

1. That the number of leprous patients on Iceland is at least three times as great as heretofore presumed. That the real number is far, far greater than that which I have found is a matter of course. My journey has been a mere journey of reconnoitring; going about in pursuit of patients was out of the question on account of the enormous distances. I was obliged to confine myself to examine those patients who presented themselves, and in some cases I had to ask my way from farm to farm. That in some places the patients shunned me is a fact; this was, for instance, particularly the case in the province of Bardestrand, where it is considered a disgrace to be leprous, and where the disease is looked upon as infectious. This, again, is the consequence of there being provinces (Dala, Myra, East and West Skaptafell) where I have not set foot, and with regard to which I have been obliged to be content either with the official numbers (Dala, Myra), or I have only counted those patients who did not shun the journey of three to four days to meet me in the neighbouring province (the provinces of Skaptafell). Finally it is due to the circumstance that I scarcely saw any cases of the disease but those *strongly marked*, those of which there could no longer be any doubt. *So in my enumeration nearly all the beginning cases of the disease are wanting.*

2. *That the relation between the tuberous, the anæsthetic, and the mixed form is about the same on Iceland as in other countries.* In the enumerations of the clergymen the anæsthetic forms (Icelandic, Limafallssyki) have hitherto mostly been left unnoticed, as the circular which the head physician has sent round does not require informations, except of the tuberous forms (Icelandic, Holdsveiki).

3. While in certain districts of the country the disease is on the decline, as is especially the case in the whole of the west country, where formerly leprosy was enormously wide-spread, *it is just as sure that in the provinces of Rangarvalla and Öfjord it is on the increase.* I must particularly direct the attention to the last-mentioned "fjord" as the most dangerous seat for the leprosy. The western coast (the province of Öfjord) has in my enumerations twenty-five patients, and the eastern coast of the fjord has nine patients (the pro-

vince of Thingö), which makes altogether thirty-five patients on both sides of the "fjord." These cases are dispersed in small foci in *Olufsfjord, Svarfadardal, Grytubakke,* and round about *Akureyri,* which gives evidence to the local epidemic character of the disease.

Most of the cases I observed about Öfjord were only some years old. As to the point of time at which my now living patients in these two districts have been attacked by the disease, the state of the matter is this :

The province of Rangárvalla.	Province of Öfjord-Thingö.	The patients were attacked
3	0	before the year 1880.
0	1	in „ 1880.
0	0	„ „ 1881.
1	2	„ „ 1882.
1	1	„ „ 1883.
3	3	„ „ 1884.
1	1	„ „ 1885.
0	1	„ „ 1886.
0	0	„ „ 1887.
1	2	„ „ 1888.
2	3	„ „ 1889.
3	3	„ „ 1890.
1	4	„ „ 1891.
0	6	„ „ 1892.
4	6	„ „ 1893.
1	1	„ „ 1894.
21	34	

This survey tells its own story : if one would have a trustworthy picture of the movement of the disease, one must needs have trustworthy lists of mortality ; but as things are, such ones are not to be procured. While in other places, in Isafjord, for instance, our consultations were actually besieged by healthy children (in Isafjord 40—50) of diseased leprous parents, there was in Öfjord at the very utmost a dozen children present—the best evidence that the increase of the disease is not more than one generation old.

East of 30° of longitude I have only met with two patients, one in *Seydisfjord,* the other in *Bjarnarnæs* at *Hornafjord.* Both these patients had immigrated from the Eastland, and they also acquired their illness there. The

constantly increasing traffic between the provinces, as well as the great traffic between the Faroe Islands and the eastern coast of Iceland, make these circumstances very critical. Of course one single case is sufficient to rouse a local epidemic.

Since the four miserable hospitals for leprosy on Iceland were abolished, according to the bill of the justice department of August 23rd, 1848, literally nothing has been done against this dreadful disease. The lepers were by this arrangement deprived of their tending and maintenance, and afterwards they have been left to take care of themselves and given up to the care of the pauperism. After a couple of years, the patients who suffer from this generally incurable disease, without any means to earn their own living, fall to the pauperism, and then they are sent to some private farm for a payment which varies from 70 to 150 kroner a year (four to eight £ sterl.). For this sum, which necessarily is quite insufficient, and which is only accepted because the population want ready money, the people concerned keep him only about a year. When it appears that it will not answer keeping him any longer, he is sent to another house, and thus the infection creeps from farm to farm. While nearly all my colleagues on Iceland are zealous contagionists, the opinion of the population differs very much : in those districts where the disease is on the decline it is considered contagious *and* inheritable ; in those districts where it is on the increase the population appears to be thoughtless in the presence of the imminent peril.

So this disease, which one almost considers as prehistoric, can strike root there where Hansen's bacillus refinds its favourite soil of uncleanliness, bad nourishment, and filthiness, under hygienic circumstances which have not altered in many respects since the Middle Ages.

I shall now describe a little further the poor Icelander's mode of living, and the observations I have made as to the evidence of infection. With regard to any more details than I have space to give here I am obliged to direct the reader's attention to the masterly observations of Schleisner.[1]

The Habitation.—The Icelandic habitation is in its typical

[1] 'Iceland from a Medical Point of View,' Copenhagen, 1847.

form a sod-hut of green turf. It is built without a foundation, resting upon some large stones or the bare ground. The farm consists of four or five huts, of which each makes one room ; one hut is crammed closely against the other, and all the façades face the road. The front is covered with a thin layer of boards, some few of the rooms are boarded, and from the boards drips the moisture in big drops, even in fine weather, for the sod absorbs the dampness like a sponge. When we had been out in the rain our clothes could never be dried in the interior of these houses. In the façade there are some few windows, which are all, however, nailed up for fear of the winter cold, so that the rooms are only and entirely ventilated through the T-shaped passage which connects each of the rooms with the air outside, but the passage itself is dark and narrow. For the Icelanders are still proved to be on that low hygienic point of civilisation which holds the fresh air to be a more ruinous enemy than the corrupted air. One of the rooms always serves as a separate bedroom for the peasant and his wife ; but *with the poor* this room is dropped, and all the people of the farm—men, women, and children—sleep in the same room, the so-called "Badstofa" (bath-room). In this room every one at the farm lives during the long rainy days and the long winter evenings ; here the meals are eaten, generally in bed, for there are no tables. At the utmost they have a couple of boxes which you can sit on. The Badstofa has six to eight fixed bedsteads, or rather large wooden boxes, each box intended for two or three persons, who usually sleep head against feet and feet against head.

If you enter this Badstofa when thirteen to fourteen persons lie sleeping there, first of all you feel a temperature which certainly both summer and winter reminds you of the tepidarium of a Roman bath, but surely here the likeness ceases. A suffocating stink and an unwholesome smell meets you. It is the smell of the mouldy hay, of the sheepskin quilts that are never dried or aired ; it is the smell of the dirt which is dragged into the house on the clumsy Icelandic skin shoes that want double soles, and are quite unqualified to keep out the dampness. In this dirt a confused mixture of cats, dogs, and children lie reeking on the floor, exchanging caresses and

echinococci; it is the smell of the wet stockings and the woollen shirts which hang to dry next to a slice of dried halibut ("Rekling") or the dried cod's head—this dreadful irrational favourite dish, for which the Icelander pays four kroner (4*s*. 6*d*.) a hundred. And if you poke your nose into the corners of the Badstofa, you will find a bucket in which the urine of the whole party is gathered; it is considered good for wool-washing.

I shall never succeed in picturing all the details of such an interior, which, in addition, you may imagine as being heated in the winter, at the places where they have no turfs, with the sheep's dried excrements, a kind of fuel which spreads a penetrating smell of nitre and burnt wool.

One must have seen and smelt it all to be able to understand that the leprous disease is due neither to the rancid butter nor to the dry fish. Just as well as rousing accusations against these articles of food which certain leprologists do, one might complain of the want of brooms to sweep the floor with, or insist that the leprosy is owing to the want of window-hooks, or to the stagnant water they drink. It is neither one nor the other of these moments, but the whole *ensemble*; it is the absolute want of cleanliness plus Armauer Hansen's bacillus, which in such an interior finds its true paradise.

The Nourishment.—The adherents of the theory of the rancid butter and the rancid oil as the causes of the leprosy must not imagine that a house where they prefer or are content with the rancid butter is more careful with the other articles of food. The rancid butter or oil is only a symptom of the general filthiness which manures the soil in which the disease thrives. And then the poor fishes: the adherents of the theory of the fat fish will, no doubt, be content to hear that on Iceland it is especially the inhabitants of the coast who are affected with leprosy. But the explanation of this is quite simple, the interior of the island being almost uninhabited and uninhabitable, and covered with glaciers. Also on Iceland they know the tradition about the leprous disease being due to far too exclusive an eating of fat fish. In Gullbringe it was the halibut, round the Lake of Thingvalla it was the trout which was accused of causing this horrible disease. It is a well-known fact that too mono-

tonous a diet breaks down the resisting power of the organism as to diseases of every kind, but it can never create a specific and infectious disease. We also notice that the leprous disease has decreased considerably in the province of Gullbringe, and it has almost disappeared round the Lake of Thingvalla (I only found one single patient in this district). But it still teems with halibut and trout. All these theories may soon befittingly be buried beside that of Hjaltelin, who believed that the decrease of the leprous disease in Iceland was owing to the introduction of the potato. He considered the leprous disease as being founded upon the want of potassic salts in the blood. At the present time the potato has found its way to most of the Icelanders' tables, but unfortunately the leprous disease is on the increase. Is now this, may be, the potato's fault?

The essential nourishment of the Icelanders consists of *dried fish,* which is eaten cold with *rancid butter;* they even prefer the rancid butter that is kept for years, and to which the poor add a little (train) oil of whales or seals. The *sour milk* which they call "Skyr" forms a conspicuous part of their food, and can likewise be kept for years. *Bread is a rare* food, and does not form a prominent part, as Iceland does not produce any corn itself. The bread is prepared without any yeast or leaven, generally under the form of pancakes. That meat which bears the prominent part is the *mutton,* which is eaten new-killed in the months of September and October; smoked, salted, or preserved during the other months of the years. The Icelandic mode of cooking *is almost destitute of salts, spices, and vegetables.* As the chief grievance of their living the scarcity of *carbonic hydrates* must undoubtedly be stated. *But the want of carbonic hydrates only* does certainly not cause leprosy.

The Leprous Disease is an Infectious Disease.

Is it really necessary in our day to heap proof upon proof of this simple fact before it prevails? Why, we have seen the heroic Pater Damien die at the hospital for lepers on Molokai. We know the grafting which Dr.

Arning from Hamburg[1] undertook on a criminal sentenced to death from the Sandwich Islands; his name was Keanu. This criminal became two years after attacked by leprosy, which started at the point of inoculation. Certainly Dr. Swift insists that this last proof is not perfectly valid, as the son, the nephew, and the cousin of the experimental object were all leprous. The late Dr. Danielssen made in 1844, 1846, 1856, and 1858 repeated inoculations[2] on himself and upon several of the hospital nurses, inoculations which all remained resultless. Profeta has made similar experiments, and always with negative results. However, all these negative results do not, of course, prove so much as one positive result. How often does it not happen that the plain vaccination fails for us? Let us, opposite to these negative results, place Gairdner's two children,[3] who became leprous by the vaccination. Onetti has also observed a case of leprosy transmitted by the vaccination.[4] Ortmann and Melcher[5] have perhaps inoculated leprosy in rabbits.

And there are not a few clinical proofs of infection. Johannes Petersen, an Icelandic physician from the eighteenth century, quotes as an instance a peasant who became leprous by wearing another patient's boots. At the present times, Hawtrey Benson[6] (from Dublin) has in 1872 presented a man who had never left Ireland, but who, after having used his brother's clothes, became leprous, and died from his illness. He had contracted the leprosy in the East Indies, and brought it home to his native country. Small epidemics have been noticed in Cape Breton[7] and in Louisiana,[8] which with greater precision point at contagion. And Halm[9] cites a case where a nun-nurse became leprous by pricking her

[1] 'Archives of Dermat. and Syphilis,' 21 Ergänzungshefte, No. 9.

[2] 'A Commemorative Writing at the Fifty Years' Jubilee of Danielssen,' Bergen, 1891, p. 15.

[3] 'British Medical Journal,' June 11th, 1887.

[4] 'Gazzetta medica di Milano,' 1846 (cited from Leloir).

[5] 'Berl. klin. Wochenschr.,' 1885, No. 13.

[6] 'Dublin Journal of Medical Science,' June, 1877.

[7] 'Canadian Journal of Medical Sciences,' September, 1881 (cit. from Leloir).

[8] 'Annales de Dermat.,' November 25th, 1885.

[9] 'Thèse de Nancy,' 1882 (cit. from Besnier).

finger when she was patching the clothes of a leprous patient. Our Norwegian colleagues, who have always distinguished themselves in the first rank among those who have studied this dreadful scourge of their country, Drs. Armauer Hansen and Kaurin, as well as Leloir, who visited the leper asylums in Norway, quote numerous instances,[1] which leave no room for doubt as to the possibility of contagiousness. I have lately received a small very instructive essay by Lorand (Carlsbad),[2] in which are collected some hitherto unpublished observations of our Swedish colleagues, Langgren, Stappelmohr, Oehrn, and Sederholm. These physicians, who live in close relations with lepers, are outspoken adherents of the theory of contagiousness, quite as are our Icelandic colleagues.

My personal researches have given the following result.

I have classified the 102 patients whom I have examined myself into two groups :

1. Patients in whose family cases of leprosy *have occurred* (fifty-one patients).

2. Patients in whose family cases of leprosy *have never occurred* (fifty-one patients).

To be able to understand the significance of these informations, one must know that most of the Icelanders possess exact genealogical tables of lineage, which even permit some of them to trace their descent back to 874, to the first colonists.

I should feel inclined to believe that nowhere else an examiner could produce any so reliable and complete material for ætiological and epidemiological examinations as in Iceland. Besides, I must add that the majority of my patients have proved to be very stationary with regard to their residence. There are, may be, a dozen persons who have left, for a shorter or longer time, the district where they were born ; but the greater part of the Icelanders are born, live, and die in the same parish, a circumstance which is peculiarly favourable for epidemiological researches, so that the ætiology of leprosy would be quite clear were it not

[1] 'Norsk Magasin for Lægevidenskaben,' different years ; and Leloir, 'Traité de la Lèpre.' Paris, 1886.

[2] 'Wiener med. Wochenschr.,' 1894, Nos. 26 to 28.

for this confounded period of incubation, the duration of which is utterly unknown, which we have to combat with. And, lastly, I must add that as a rule my patients have enjoyed perfectly good health before the leprous disease broke out with them.

First Group.

Cases of leprosy in the family (fifty-one patients).

A. *Father and mother both leprous.*

This group comprises three patients. With all the three persons concerned the leprous disease did not break out until a very long time *after* the children's birth; and the chances are here that these cases are those of contagion rather than of heredity, all the patients having brothers and sisters who have remained perfectly sound.

No. 56. A boy of eleven with lepra maculosa—was not known to be affected. Is a son of my patients Nos. 54 and 55. No. 54, the mother, has lepra anæsthetica, probably five or six years old.

No. 55, the father, has been tuberous for eight years. During the first two years of his life the boy shared the bed of his parents, but not afterwards. He has a half-sister and a half-brother, who are both sound.

No. 64. A member of the family at Sydrigrof, which place he left only three years ago (this family will be mentioned later on). He is a man of twenty-eight, with lepra mixta six years old. The father died eight years ago from leprosy after eight years of illness. The mother is my patient No. 26, who suffers from anæsthetic leprosy; she has been ill for nine years. The other brothers and sisters will be mentioned under No. 26.

No. 25. A sister of the above-mentioned; she has lepra mixta eleven years old.

B 1. *The father only leprous* (*fourteen patients*).

Also here the question is about cases where the parents became leprous *after* the children's birth.

No. 2. Man of thirty-one, lepra tuberosa two and a half years old. The patient's father, fifty-five years of age

(No. 10), has during six years been suffering from tuberous leprosy.

No. 3. Man of forty-three, lepra tuberosa eight years old. The patient's father died fifteen years ago from lepra tuberosa. During five (5) generations a man of his family has been leprous.

No. 17. Man of thirty, with lepra mixta five years old. The father died fifteen years ago from L. tuberosa.

No. 18. Woman of forty-two, with L. anæsthetica three years old. The father died sixteen to seventeen years ago, after five or six years of illness from L. tuberosa. A sister died from L. tuberosa in 1892.

No. 28. Man of eighteen, L. tuberosa ten years old. The father died twelve years ago after two years of illness from L. tuberosa. *He is thought to have infected the son, who was then four years old.*

No. 31. Woman of fifteen, L. mixta four years old. A sister of above-mentioned No. 28, *by whom she has probably been infected.* Four other sisters and brothers are alive and in good health.

No. 35. Man of twenty-one, L. tuberosa one and a half years old. The father died eleven years ago from L. tuberosa after two years of illness.

No. 42. Man of forty-one, L. anæsthetica seven weeks old. The father died forty years ago from L. anæsthetica.

No. 48. Man of sixty-four, L. anæsthetica six years old. The father died sixty years ago from L. anæsthetica.

The Family Einarsson.

No. 59. Woman of forty, L. anæsthetica seven years old.

No. 60. Woman of twenty-six, L. tuberosa seven years old.

No. 61. Woman of thirty-six, L. anæsthetica ten years old.

No. 62. Man of twenty-nine, L. anæsthetica mixta nine years old.

These four are sisters and brother, besides one sister of thirty-five, not examined; she has been suffering from tuberous leprosy for twelve years. These five children's father, Einar J—, died nine to ten years ago, sixty years old, of L. tuberosa. His sister's daughter was leprous. Besides the above-mentioned five, there are, out of eleven

sisters and brothers, yet two other healthy sisters alive, who left their home quite early, before the outbreak of the father's illness, one in her second year of life (she has never since visited her parents), the other in her sixth year of life. *The five above-mentioned sisters and brothers, who did not break off the connection, have all become lepers.*

No. 96. The patient has most probably been infected in marriage. Man of fifty-eight, L. anæsthetica twelve years old. The patient's father was leprous, but died two years after the son's birth. The patient's wife died fourteen years ago from L. tuberosa, after thirteen years of marriage, eight to nine years of illness. *Two years after her death the disease broke out with the patient.*

B 2. *Only the mother leprous* (4 *patients*).

Also here the mothers have become leprous *after* the birth of the children.

No. 24. Man of thirty-two, L. tuberosa eight to nine years old. The mother died nine years ago after two years of L. tuberosa. Out of thirteen children five have died as babies, eight are alive, and patient only ill.

No. 44. Man of thirty-seven, L. tuberosa four years old. The mother, who is seventy-one years old, lives and has kept her bed during nine years, suffering from L. tuberosa. A sister of No. 44 died five years ago after two years of L. tuberosa.

No. 75. Man of twenty-five, L. mixta three years old. The mother died twenty-one years ago of L. tuberosa. One brother died at the age of twenty-eight, seven years ago, after having suffered for four years from L. tuberosa.

No. 76. Boy of nine, L. maculosa ; outset uncertain. The son of No. 77, who has L. tuberosa. The father has only an ordinary psoriasis. There have been six brothers and sisters, two of whom have died from children's diseases, four are alive, the youngest is eleven weeks old and is nursed by his mother, No. 77, who *suffers from a strong tuberculo-ulcerative leprosy*. The two midmost children do not ail anything.

I particularly call the attention to this case, because it so strikingly shows that leprous women *may give birth to healthy children even at the terminal stage of their illness*, a fact which does not exactly speak in favour of the theory

of heredity, though, on the other hand, it does not absolutely contradict it. But this observation cries loudly about the filthiness which thrives in leprous houses.

C. *Father and mother not leprous, but leprous brothers and sisters; nineteen patients.*

In most of these cases such patients are concerned who have been infected by their brothers and sisters. It is a matter of course that the danger of infection is nowhere so great as in the intimacy of home life, and naturally the younger children will have to suffer. Of two of my patients it is known for certain that for a long time they have shared the bed of lepers; a third patient has lived for several years under one roof with a leper.

No. 7. Woman of 46, L. tuberosa. The patient's eldest brother died in 1887 from L. tuberosa, which had lasted for eight years (1879—1887). They were together until her thirteenth year (he was then twenty-one), but he was not attacked before he was almost forty.

No. 27. Man of 52, L. anæsthetica twenty-two years old. A half-brother died ten years ago, fifty years old, from L. anæsthetica. The patient has during *about three months slept with a patient suffering from L. tuberosa, three to four years before the outbreak of his own disease.*

No. 34. Woman of 59, L. mixta two years old. Two sisters both died from leprosy: one, whose age she does not remember, died ten or twelve years ago; the other, forty years old, two or three years ago. If she has been *infected by them,* she can only think it being *because* she kissed *them when she met with them.*

No. 38. Woman of 26, L. tuberosa three years old. A sister of No. 34 lived until the age of twenty in Holtamannarhepp, the district in Rangarvalla where leprosy has spread very much during the last ten years. The farm where she lived *was frequently visited by lepers.*

No. 39. Woman of 60, L. tuberosa twelve to thirteen years old. A sister of 50 died three to four years ago after two to three years of illness, several days' journey from the patient's residence.

No. 40. Man of 35, L. tuberosa (look under No. 41).

No. 43. Woman of 22, L. anæsthetica since October, 1893.

A half-brother died in the summer, 1883, thirty-nine years old, after ten years of L. tuberosa. He stayed till his death at the same farm as the patient.

No. 45. Woman of 63, L. anæsthetica, began thirty-three years ago. The disease broke out with her before either of her two brothers who died from L. tuberosa. A brother of 42 died, twenty years' illness. Four brothers and sisters out of sixteen live beside the patient, and they are all well.

No. 55. Man of 37, L. tuberosa, eight years old; his grandmother's sister and her daughter have had leprosy. A sister died in the year 1894 from leprosy after three to four years' illness; she lived in the same parish. The patient himself slept one winter, twenty years ago, together with a leprous patient.

No. 58. Man of 45, L. mixta, five years old. The patient's father died from leprosy. A brother, older by one year, died twelve years ago from the measles with L. tuberosa; he had been ill for four years: he lived in the same parish. A half-brother died seventeen years ago in the same parish, after eight years of L. tuberosa.

No. 68. Woman of 53, L. tuberosa mixta, thirty-five years old. A sister died thirty-five years ago in her nineteenth year from L. tuberosa, another one forty years ago in her thirtieth year from the same disease. The patient herself *was together with these sisters at their parents' till her twenty-sixth year.*

No. 73. Woman of 64, L. tuberosa mixta, two years old. Her father's sister and this latter's two children were leprous. The patient's sister of sixty-nine is suffering from six years' advanced L. tuberosa at the terminal stadium; the patient has constantly kept company with this sister, who lives in a neighbouring farm. The patient has two daughters, one married and well, the other married to No. 74 (L. anæsthetica).

No. 78. Man of 53, L. tuberosa, five years old. A half-sister, who lived close by, died seven and a half years ago from L. tuberosa, after seven to eight years' illness.

No. 82. Man of 40, L. tuberosa, one year old. A sister of thirty to forty died five years ago from leprosy; they kept

company, but not intimately. *Four years ago the patient lodged a leprous pauper for a year in his farm* (*for* 60 *kroner* —£3 1*s.* 3*d.*, *the lowest price I ever heard of in Iceland*).

No. 86. Woman of 31, L. tuberosa, two years old. A sister of No. 88.

No. 88. Man of 30, L. tuberosa, one year old. Brother of No. 86; has lived in the same farm as she, who became ill a year before.

No. 90. Woman of 38, L. mixta, ten years old. A half-brother died half a year ago after six years' illness about forty years of age. They were together one winter, but the patient No. 90 was then already attacked. A half-sister suffers from L. anæsthetica (No. 92), but she too was attacked before.

No. 92. Woman of 53, L. anæsthetica, ten years old. A half-sister of the above-mentioned No. 90; she has lived at a farm together with a widow who died at the farm from L. tuberosa.

D. *The parents not leprous, but a remoter relation; eleven patients.*

No. 1. Man of 33, L. tuberosa since May, 1894. The patient's father's father became leprous at a more advanced age.

No. 13. Man of 46, L. anæsthetica twenty-three years old. At least three generations backward there has been a great deal of lepers, but neither parents nor grandparents were leprous.

No. 15. Woman of 30, L. mixta fifteen years old. Her mother's brother died five years before the patient's birth from L. tuberosa; two daughter's sons of another of her mother's brothers have died from leprosy.

No. 23. Woman of 34, L. tuberosa three years old. Her father's brother was leprous; he is now dead, and did not live at the same farm. At the neighbouring farm lived a leprous patient with whom she denies to have had any intercourse. Dr. G. Gudmundsson, on the other hand, says *that she has had a leprous man-servant at her farm for about a year.* The lepers conceal such points, lest they shall rouse the inhabitants' apprehension of having any communion with them. This woman came to me on horseback

accompanied by a dead-drunk attendant. Need I to add that they both employed the same pocket flask with brandy, regardless of the large ulcerated lepromata in the woman's throat, on her lips, and on her tongue.

No. 30. Man of 37, L. tuberosa mixta five years old. His mother's brother died from leprosy.

No. 47. Woman of 67, L. anæsthetica forty-five years old. She has two leprous nephews, one of whom is dead, the other (No. 40) is alive.

No. 72. Woman of 30, L. tuberosa. Her father's mother died from leprosy. Her own disease began last year hardly *one year ago, and for more than one year she has served at a farm where a tuberous leprous patient,* a sister of No. 73, and mother-in-law of No. 74, *lives.* The patient lies in the same "Badstofa" (room), next to the leprous patient. We are informed that until four years ago *one of the children at the farm shared the bed of the leper for one year and a half.*

No. 74. Man of 40, L. anæsthetica. His mother's brother has been leprous, but he has never known him. His mother-in-law is leprous (No. 73), and the sister of his mother-in-law, being also leprous, *was frequently together with him, and became ill before him, but they did not live at the same farm.*

No. 83. Man of 32, L. anæsthetica mixta three and a half years old. His father's brother died from leprosy before the patient was born.

No. 84. Woman of 37, L. tuberosa two years old. Her father's brother, who died nine years ago, was leprous, but she did not live together with him. Her late husband's brother's son suffers from L. tuberosa.

No. 87. Woman of 34, L. tuberosa three years old. Her father's brother died from leprosy many years ago. A brother of 20 died two years ago from leprosy after six years of illness. He rambled about to different places in the district; the last year of his life he lived at the patient's farm.

SECOND GROUP.

No cases of leprosy in the family; fifty-one patients.

Again I call attention to the fact that these negative informations are most likely as reliable as is altogether possible to procure them. Most of the Icelanders keep, as before mentioned, genealogical records. What are they to do during the long winter evenings? Again and again it happened at the consultations that the genealogical tables were fetched out of the pocket, and that the patients referred to them and gave us information from them. There is, therefore, hardly any other examiner who has disposed of a material as trustworthy as mine, which appears from such details as those I have already stated, where, for instance, a patient is able to tell us that in five generations of his family one man has been leprous.

A. *No leprosy in the family, neither can any contagion be stated; thirty-three patients.*

For regularity's sake I cite their running numbers, but considering the space I give no further information. The minute histories of the diseases shall be published later with the same running numbers.

Running numbers: 4, 5, 8, 9, 10, 11, 14, 16, 19, 20, 29, 46, 50, 51, 53, 57, 63, 65, 66, 69, 70, 77, 79, 81, 85, 89, 93, 94, 95, 97, 100, 101, 102.

B. *No leprosy in the family, the patient probably infected by marriage; two patients.*

(Besides there is one case without a number, which belongs to this: it is due to oral communication, and further the stories No. 41 and 52, in which the patients have been infected in concubinage without marriage, and No. 96 who is included in the first group.)

The Family at Sydrigrof.

No. 26. Widow of 54; the mother of this family, L. anæsthetica nine years old. The patient herself was perfectly well until in 1885 she was affected by the disease. She was married in 1859–60: 1878, after eighteen years of married life, her husband became leprous and died in 1886, fifty-seven years old. The husband's grandfather, whom he had never seen or known, was leprous; on the other hand,

his father was not; but his blind brother, who died in 1870, was leprous, and accompanied his brother (the husband of No. 26) all over. The parents of No. 26 were healthy; they had only two children; the other sister is alive and sound. The patient has had eleven children, out of whom three, the midmost of the lot, died as babies. The youngest child was born in 1879, the year after the outbreak of the father's leprosy; he was examined by me; he was now fifteen years old. He suffered from fainting fits, anæmia, his eyebrows had fallen off, but there was no anæsthesia nor other signs of leprosy. Two other sons and two daughters were examined by me, among those the youngest but one, a son of nineteen; they did not ail anything. Two other sons were absent; afterwards I met No. 64, who three years ago left his parents' house, and who now suffered from L. mixta six years old. A daughter of thirty-one (No. 25), who lived at another farm as a pauper, suffered from L. mixta eleven years old.

No. 54. Fifty-three years old, suffers from L. anæsthetica and is married to peasant No. 55, who suffers from L. tuberosa. She does not know that she is ill, still she remembers that five to six years ago she suffered from giddiness and shivering fits. The gout, which had plagued her head, wrist, and arms during twenty to thirty years, grew worse. Scarcely one year ago she had an itching eruption *on her arms after having washed her husband's clothes;* when she scratched it she observed on her left arm, *just above the wrist on the ulnar side, an anæsthetic* patch of the size of a child's palm. In this patch there is analgesia up to 250 (Friedenreich's anæsthesiometer), but no anæsthesia. The skin is, in one half of the speck, rugged, erythematous. The hair is falling off, and there is a beginning contraction of both the small fingers (without inspissations of fascia palmaris), but otherwise no signs of leprosy. No sensible inspissation of the ulnar nerve on the left arm.

Without a number.—Woman married to my patient No. 95, who is a man of 46 with L. mixta. During five years the woman has been suffering from neuralgia in the whole of her body, and she has anæsthetic specks on her thighs (not examined).

C. *No leprosy in the family, probably infection; sixteen patients* (plus *one patient without a number*).

No. 6. Man of 36, L. tuberosa five years old. He has had leprous associates.

No. 12. Man of 51, L. anæsthetica ten years old. Has during his youth kept company with many leprous people.

No. 21. Woman of 31, L. tuberosa five years old. She has for one year served at *a farm where a leper lived in the terminal stage of the disease; he died the following year.*

No. 22. Woman of 24, L. tuberosa four years old. *In* 1884 *a leprous fisherman stayed at the farm where she was* in the fishing season. Besides, a leprous patient whom she served frequently came there.

No. 29. Man of 63, L. tuberosa ten years old. *Lepers have often stayed the night over at this farm;* he is the richest farmer of the parish, and consequently is very much visited by people.

No. 32. Man of fifty, L. tuberosa ten to twelve years old. *Lived for a couple of years together with a leprous patient at the same farm.*

No. 33. Woman of 31, L. tuberosa six years old. For about one year *she shared the bed of a leprous patient, and during this time she went through a cure for the itch.*

No. 36. Man of 56, L. tuberosa mixta four years old. When fifteen years old he served together with a leprous boy.

No. 41. Woman of 34, L. tuberosa half a year old. *Lives together with patient No.* 40, *and belongs to:*

The Family at Moshvol in Rangarvalla.

The family at Moshvol consisted of three brothers, one of whom (he seems to have dragged the infection into the family) died last winter of L. mutilans. He was fifty years old, and had been ill for ten years. This brother travelled about twenty-five years ago together with a leprous patient, slept in the same bed as he, and is supposed to have been infected by him. The other brother (No. 40) is suffering from fresh L. tuberosa. The third brother, with whom No. 41 lives together, is not yet affected, though. The brothers' mother's sister (No. 47) is sixty-seven years of age; she

lives at a more distant farm and suffers from L. anæsthetica, which has lasted for forty-five years. For the rest there is no leprosy in the family. The father of these three brothers died in the winter 1893–4 at the age of eighty! The mother is alive and sound, eighty-five years old.

The day after the death of the above-mentioned brother, Dr. Olafr Gudmundsson was sent for to No. 41 to deliver her (she suffered from narrowness of the pelvis) of the third illegitimate child with the brother who is not leprous. The woman in labour lay *in the same bed with the same bedclothes which the leprous corpse had left the day before,* and there she was getting ready for the delivery in these very little comfortable surroundings, which was fortunately prevented by the physician. *The same winter the woman in labour was attacked by tuberous leprosy.* At my arrival she had no suspicion of this, for she had regarded the prodromes as "pains of gout," and the first protuberances (tubercles) as "warts."

No. 49. Man of 35, with L. tuberosa two years old. He served fifteen years ago together with a leprous patient.

No. 52. Widow of 51, L. tuberosa three years old. A leprous man died two years ago after two years of illness at the same farm as the patient (*most likely he lived in cohabitation with the patient*), and he is by *the patient considered to have infected her.* She herself is a midwife, and until May, 1894, she still practised as one. She suffers from far advanced leprosy with large scattered tubercles, covering also her hands and forearms.

No. 67. Man of 67, L. anæsthetica eleven years old. Once he *lodged a pauper for three years; the latter was suffering from L. tuberosa.* He left him fourteen years ago. *Three years after he was himself attacked by the disease.*

No. 71. Man of 50, L. anæsthetica five years old. Twenty years ago he served at a farm where a leprous patient came on a visit. This patient was rambling about, and died at this farm in a bed opposite the patient.

No. 80. Man of 35, L. anæsthetica three years old. *For two years he has been living under one roof with his sister-in-law,* No. 70, who was not known to be leprous, but now she has been ill for three years.

No. 98. A fisher of 35, L. mixta two years old. Five

years ago he shared the *room of a leprous patient and ate together with him for six weeks.*

No. 99. Boy of 14, L. maculosa two years old. A sister's son of his father was leprous. *When the boy was ten years old he slept for half a year with a woman* (No. 86) *of whom it was not known that she was ill, but two years after tuberous leprosy broke out with her.*

Finally I add an oral communication from Dr. Thoroddsen in Gullbringe about a patient whom I did not see.

Without a number.—"A girl of 18, L. anæsthetica begun this year. Her father's sister, who is now dead, had lepra nodosa, and stayed four years ago with the patient's father. *The child of fourteen shared the bed of the leper during the whole winter.* Three years after *she became ill herself.* Her father's sister has since the outbreak of her illness borne a child, who is now six years old ; I have examined it, and it does not ail anything."

Answer to the Prize Question.

Conditions under which leprosy has declined.—From the historical view I have given in the first part of my work it appears that *the leprous disease* in all probability *has been introduced into Iceland after the Crusades, probably from Norway.*

1. *Four hospitals.*—It spread very much on the island, and increased most likely very strongly during the sixteenth century. In 1651 *four hospitals* were erected as a defence against the disease ; they never got to contain many of the leprous patients, hardly more than 5 per cent. of the whole number. Their power of combating with the progress of the disease was not great ; they were dirty, small, and unclean. Nevertheless I suppose they were of some use by isolating the worst patients and those who were most dangerous of infection, whom no one else had a mind to house. Undoubtedly it has had a far better and more preventive influence that the population itself *dreaded the infection.*

2. *Popular dread of contagion.*—The leprous disease

was in the Middle Ages all Europe over held to be an eminently contagious disease. For a long time the Icelanders stuck to this view, and not before the nineteenth century did this opinion waver, and they begin to listen to the statements as to its being an inheritable disease.

3. *The great devastating epidemics.*—Better than all public measures against the disease, though, was the effect of *the great devastating epidemics,* especially the smallpox epidemic in 1707, which swept away one third of the population of the whole island, and the epidemic of the measles in 1846. It is particularly mentioned in the history of Iceland that in the first instance *the lepers had always to suffer from these epidemics.* Yet after each epidemic the number increased again, sheltered by the bad hygienic circumstances.

4. *Forbiddance of marriage.*—In 1776 the lepers were *forbidden to enter into marriage.* Naturally this inhibition has also been conducive to diminish the disease, the leprous patient being as a rule most dangerous for his own family.

But, on the other hand, the inhibition was not strictly carried into effect, repeatedly it had to be enforced anew, and besides, the beginning lepers probably hurried on to marry before their illness had become manifest to their surroundings.

5. *Advancing civilisation.*—Thanks to these different circumstances, the disease decreased by-and-by in Iceland, to which fact, of course, *the advancing civilisation* assisted somewhat, although its hygienic progress on Iceland has been exceedingly small with regard to the poor. Therefore in 1848 the Government closed the four miserable leproseries.

No doubt this arrangement has been to the injury of the country. Surely the hospitals played but a slight part in the combat against the disease, but it must not be left out of consideration that their existence indicated that the disease was still to be feared. On the contrary, the abolishing of the hospitals and the administration's throwing up the game could not help giving the population the idea, which Iceland's superior physicians persistently maintained, that the disease was on the point of becoming extinct spontaneously, and that it did no longer deserve any interest.

Thanks to the improved means of communication (steamship traffic) the leprous patients have been able to make their way to parts of the country which formerly the disease had not taken hold of, and where, therefore, the population at the present day did not entertain any fear of it. Thus in two districts the disease has spread. Still, it is not to be settled definitely how much it has increased, for the Icelandic Government have not had their eyes sufficiently open for the imminent peril; they have been content with quite superficial enumerations performed by the clergymen, and which therefore almost solely concerned the tuberous lepers. Thus the official enumeration of 1889 reports but 47 patients, while without any special searching I found 144.

Post-scriptum.—Dr. Ehlers' second voyage in Iceland during the summer 1895, has brought to light 15 new patients, so that their total number is now 159. It cannot be an exaggeration to say that there are at present at least 200 lepers in Iceland.

LEPROSY IN SOUTH AFRICA:

A REPORT ON THE FACTS AS TO THE RECENT INCREASE OF LEPROSY AT THE CAPE, AND ITS PREVALENCE IN SOUTH AFRICA.

BY

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LEPROSY IN SOUTH AFRICA.

The archives of the Cape Colony do not contain much information about leprosy, and until the middle of the last century no mention is made of this loathsome disease, so that it is reasonable to conclude that until that time the disease was not prevalent in the European settlement.

The coloured races then inhabiting the colony were, however, afflicted with the disease, and native tradition clearly proves that leprosy was known amongst the aborigines long before they had any intercourse with the strangers.

At the time of the European occupation of the Cape there were living in the colony two distinct races,—the Bantu, or black men, and the Hottentot and Bushmen tribes, who were more or less off-coloured. The former, roughly speaking, lived east and north of a line drawn from Walfish Bay on the west coast to Port Elizabeth on the east coast; the Hottentots and Bushmen occupied the country to the west and south of this line.

It is not definitely stated that leprosy existed among the Bushmen, but it certainly did to a great extent amongst the Hottentots, and to a less extent among the Bantu races.

In the north, among the natives of the interior, and in fact among all the native tribes of the colony, it existed before the advent of the white man, so that it is reasonable to conclude that it was not introduced into the colony by the new-comers, but that it had been spread by direct communication from the north, or by visitors to the country in the distant past.

During the reign of the East India Company, however,

there was free intercourse between the Cape Colony and the East and West Indies, where the disease was rife, so that probably the number of cases in South Africa was augmented by importations from these colonies.

It is not, however, until the middle of the last century that leprosy was specially mentioned by the Dutch writers and authorities.

On the 10th of May, 1756, the Landrost and Heemraden of Stellenbosch, a village situated about eighteen miles due east from Cape Town, which was founded in 1680 by Governor Van der Stell, sent in a report to the then Governor of the Colony, Ryk Tulbagh, and the Political Council, asking that steps should be taken to deal with the lepers in that district.

Two medical men were appointed to examine the cases and report upon their condition, which they did on the 20th of July, 1756, in the following terms:

"1. In the family of the farmer John M—, of French Hoek, we found the said J. M— affected in the worst form. He is stated to have had the disease for eighteen years. His family consists of his wife, four daughters, and two sons, all apparently healthy with the exception of the eldest daughter, who had taken the greatest share in nursing her father, and shows at present indubitable symptoms of the disease.

"2. In the family of the farmer James M—, of Wagon-makers, Vlei, J. M—, who has had the disease for nine years, is so bad that the extremities of his fingers and toes are mortified. His wife, four sons, and three daughters do not show any symptoms of leprosy. But, as it has appeared to us that the two J. M—'s after having become diseased became the fathers of many children by their wives, we would respectfully suggest that a careful eye should from time to time be kept on those children, so that if any signs of the disease should show on them, steps might be taken in time."

On August the 24th, 1756, the Landrost and Heemraden again wrote to the Governor, saying that the persons suffering from leprosy should be entirely separated from the healthy people. Their report ran as follows:

"We have the honour most obediently to report, that in our opinion the surest method would be to entirely separate from interconrse with healthy people the persons proved to be leprous ; but as there is some difficulty in this course with regard to the hitherto healthy members of their families, we would suggest for the present to recommend the families affected with leprosy to know their own duty in this matter, and to refrain from such intercourse by which others might become infected. Further, by affixing notices to inform all the inhabitants in what family the disease has to a certainty hitherto been discovered ; also that as from time to time it has been observed that many of the inhabitants do not think much of the disease, and have even less notion of its dangerous and contagions character, to warn them that every one should most carefully beware of those families, so as to avoid exposing themselves to the dreadful results which it would be afterwards useless to reject."

The Governor approved of these suggestions, but stated that as the two families by the adoption of these measures would be plunged into extreme poverty, the Landrost and Heemraden should provide for their maintenance.

This is the history of the first two lepers mentioned in Cape history. The history is interesting for two reasons : (1) because the fuss made over the cases shows clearly that at that time leprosy was not a common disease in the colony ; probably the two cases mentioned were the only lepers in the colony at that time. (2) Because even at that early date the contagious nature of the disease was recognised. The patients and their families were practically ostracised, as the regulations under which they lived prohibited all intercourse with the healthy outside world.

These extreme measures seemed to have the desired effect, for nothing more is heard of the families.

No mention is again made of leprosy until the beginning of the present century, so that it is reasonable to conclude that during the next fifty years the disease, though probably still existing, did not make much progress.

In 1817, on the 11th of February, Lord Charles Somerset, then Governor of the colony, issued a proclamation, directing that all the lepers in the Cape Colony should be sent

to Hemel-en-Aarde, in the Caledon District, a place which had been granted to the Government for this purpose by the Landrost and Heemraden of Swellendam.

Leprosy had by this time considerably increased in the colony, especially amongst the Hottentots. The Moravian missionaries had for five years previously been collecting these outcasts among men at this spot by offering them a home, and by ministering to their wants.

This Hemel-en-Aarde is situated among the Caledon Mountains, a few miles away from the village of Caledon. It is a most isolated spot—a small valley buried among the high hills and almost impassable rocks, over which only a glimpse of the sky can be seen. The valley is well sheltered from the winds, the soil is fertile, water plentiful, and the climate warm and equable, so that the patients and their friends, under the supervision of the missionaries, soon turned the barren waste into a veritable heaven on earth, as the name implies.

Into this lonely spot patients were drafted from all parts of the Cape Colony. At Graaff Rienet and at Port Elizabeth temporary lazarettos were erected for the reception of these unfortunate cases prior to their transmission to Hemel-en-Aarde. This was absolutely necessary, as travelling in those days was slow, and the distance being great, a journey was not undertaken unless the number of passengers justified it. When a sufficient number of lepers had been collected at these stations to form a waggon-load, the waggon drawn by oxen would start on its long and tedious journey of some hundreds of miles with its freight of human sufferers, to land them after a month or six weeks at this home among the mountains.

From 1816 to 1845 over 400 lepers were admitted into this asylum. The regulations, however, were not very strict, and the patients were allowed to have their friends with them, and were allowed to come and go as they wished. Their detention was only a voluntary one.

Soon it was found that Hemel-en-Aarde was not a satisfactory place for a leper hospital; it was too far from the seat of government, and the patients could not get the medical attendance they required. Within five years of its

formation it was decided to remove the patients to a more suitable locality, but it was not until 1845 that the change was made. At that time the colonial Government, requiring additional accommodation for lunatics and paupers, had made use of the old military buildings and convict stations at Robben Island for the reception of these patients. A portion of this establishment was also fitted up for the reception of the leper patients from Hemel-en-Aarde, who were brought hither in 1845 and 1846. Ever since 1845 the leper asylum on Robben Island has given accommodation to some lepers, chiefly of the pauper class.

Segregation was by no means complete, for the patients were allowed to do pretty well what they wished. They were allowed to leave the island when they wished. Many of those who left the island did not return, others after paying a visit to the mainland and their friends returned to the island. As only those lepers who were unable to take care of themselves availed themselves of the Robben Island asylum, the number of admissions to the asylum is no criterion of the number of lepers in the colony.

In 1883 the question of leprosy and its spread was the subject of a special inquiry by a Parliamentary Commission, who, from the evidence of a number of witnesses examined by them, came to the conclusion that leprosy was decidedly on the increase in the colony, and they recommended that some steps should be taken to check its spread.

The report of the Leprosy Commission is as follows:

"1. That leprosy prevails extensively in the colony, and is steadily spreading amongst both white and coloured classes.

"2. That no efficient steps have been taken hitherto to prevent the spread of this loathsome disease, and to avert the terrible evils which threaten society through heredity, and in other ways, from the indiscriminate intercourse and intermarriage of lepers with other classes of the community.

"3. That it has been conclusively proved to your committee that by proper measures, energetically and efficiently carried out, it is possible to arrest the further progress of the disease, and ultimately to stamp it out altogether.

"4. That for the accomplishment of this object an act for the compulsory segregation of all lepers is necessary, and the establishment of leper institutions in suitable localities where perfect isolation can be secured.

"Your committee, therefore, recommend for the protection of the public and in the interests of humanity, as well as for the sufferers themselves, that the Government should, so early as possible, take steps to secure the passing of a compulsory Leper Act, and the commencement of a system of isolation."

In the following year the Leprosy Repression Act was passed, but for some reason it was not promulgated.

In 1889 the matter was again brought before Parliament, and the fact was established that leprosy was making vast strides, and that there was urgent need of segregation. A select committee was appointed to inquire into the matter, and the result of their inquiries was that they reported, *inter alia*—

"Leprosy is on the increase in the colony. Many of the district surgeons say that in their particular districts there is no such increase, and others again are unable to express any opinion upon the question, but in the more populous districts of the colony, such as the Cape and the Paarl, and even in some outlying and less popular districts, such as Alexandria and Stockenstrom, the district surgeons report a marked increase in the number.

"Your committee estimate the number of lepers in the colony to be upwards of six hundred."

As the result of this inquiry steps were at once taken to put the Leprosy Repression Act of 1884 into force. Hospitals had to be built for the patients, as the buildings on Robben Island hitherto used by the patients were not only unsuitable for an asylum, but were too small for the reception of all the lepers in the colony. The foundation stone of the first leper pavilion was laid by Sir Henry Loch, the Governor of the colony, in April, 1891, since which time six pavilions for male lepers and five pavilions for female lepers have been built.

The Leprosy Repression Act was promulgated in May, 1892, when a large number of patients were drafted to the

island from the various districts of the colony, and from the Orange Free State and British Bechuanaland.

In the subjoined table, I have shown the number of lepers admitted, discharged, and died in the settlement on Robben Island, from the time it was first opened for the reception of patients in October, 1845, until the 30th of June, 1894. The European portion of the Cape Colony proper is bounded on the east by the native territories, on the north by Basutoland, the Orange Free State, and British Bechuanaland, beyond which are the Transvaal Republic, the colony of Natal, and the native territories of Zululand, Swaziland, and Pondoland—the last recently annexed to the Cape Colony. Leprosy exists in each of these countries to a considerable extent. I have thought it best in dealing with the subject of leprosy in South Africa to take each of these in detail, indicating how the disease was probably introduced into the country, and its prevalence at the present time.

Leprosy in Basutoland.

Until 1835 the Basuto nation was a quiet and peaceful race, and, although surrounded on all sides by European and native tribes, the Basutos kept to themselves, and had little if any intercourse with their neighbours. During the year 1835, however, their chief "Moshesh" took advantage of a native war in the Cape Colony to make a raid upon the native territories adjoining Basutoland; his armies entered these countries, and devastated the land. This was the beginning of a free intercourse between the Basutos and the neighbouring tribes. Hottentots and Bushmen, who were always a more or less nomadic people, soon settled in Basutoland, and with them brought the loathsome disease. The Basuto name for the disease is "Lefer le Bova," or Bushman disease, which clearly indicates the manner in which the disease was introduced into the country. After the great wars in which the Basutos were engaged the country became much impoverished, and, by the order of the chief, large numbers of men left the land to work elsewhere.

In 1872 they visited Kimberley for that purpose in very

large numbers, and the missionaries who live in Basutoland state that from that period leprosy became very prevalent in Basutoland. The late Dr. Casilis, who lived for thirty years in Basutoland, stated that until twenty-five years ago the disease was confined to strangers in the land, and was not known to affect the Basutos and old inhabitants of the country. I think, therefore, it can fairly be concluded that leprosy was introduced into Basutoland after the great wars of 1835, but that it was only during the last twenty-five years that it became common and prevalent in Basutoland.

The population of Basutoland is about 225,000; of these about 250 are lepers. In the Orange Free State there are a large number of Basutos working as servants, &c. Within the last two years the Orange Free State Volksraad has passed a law making segregation compulsory. To evade this law many of the natives have left the Free State for their own country, so that Basutoland is at present a land of refuge for this unfortunate class of people, and many have gone there who do not really belong to the country. It is, however, impossible to say how many of the lepers in Basutoland are refugees, and how many actually belong to the country. The Basutos themselves state that leprosy is decidedly on the increase in their country.

Orange Free State.

The history of leprosy in the Orange Free State is identical with that of the Cape Colony, as the two colonies are inhabited by the same people, and the intercourse between the Orange Free State and the colony has always been free.

The disease was probably introduced into the Orange Free State at the time of the exodus of the colonial farmers into that until then unknown country. It has increased *pari passu* with the increase of leprosy in the Cape Colony; at present there are upwards of 150 lepers in or belonging to that republic. When the Leprosy Repression Act of 1884 was promulgated in the Cape Colony in 1892, the Free State Government made an arrangement with the colonial Government by which our Government took charge of their coloured lepers; for that purpose wards for their accommo-

dation were built on Robben Island, and patients have been sent to the island. The European lepers are segregated within the republic.

Leprosy in Griqualand East and Transkeian Territories.

In 1863, for political reasons, the Griquas, under their chief Adam Kok, were moved from the western portion of what is now the Orange Free State, and from the present district of Griqualand West, to the southern slopes of the Drakensberg Mountains, where they formed the present colony of Griqualand East. The journey was a long and tedious one, as the country through which the multitude had to pass was in its primitive wild state. The Griquas—a branch of the Hottentot race—suffered very considerably from leprosy, and in the long journey they left their mark behind them, for they not only introduced leprosy into the new country, but leprosy prevails to a great extent among the people through whom they passed on their way to their new home.

The head-quarters of the new colony was called Kokstad, after the chief Adam Kok. From this point as a centre leprosy spread far and wide through the neighbouring territories, though the largest proportion of lepers is still found in the neighbourhood of Kokstad.

1. The district surgeon of Kokstad reports that the disease was introduced into the colony in 1863, that it is on the increase, and that there are at present 43 known lepers, but that there are it is believed about 80 cases in his district.

2. The district surgeon of Umzimkulu, the furthest removed district from Kokstad, says there are only 3 known lepers in his district, and that the disease is apparently not on the increase.

3. The district surgeon of Mount Frere says that the disease was first discovered in his district about ten years ago. There is no evidence that it is on the increase, and there are only 6 known cases.

4. The Resident Magistrate of Qumbu says that leprosy has only lately been introduced into his district, that it

is decidedly on the increase, and there are upwards of 20 cases known.

5. The R. M. of Umtata states that leprosy was introduced into his district by the Hottentots about seventy years ago, and that there are at present 50 cases known.

6. The R. M. of Butterworth states that the natives of his district were unacquainted with the disease until they came in contact with the Hottentots, that the disease is on the increase, and that there are now 49 known cases in the district.

7. The R. M. of Ngamatsare states that the disease was introduced into his district by the Headman Mnegania, who contracted it while living with some Hottentots in the Cape Colony about twenty-two years ago, that the disease is not increasing to any serious extent, and that there are 50 cases known.

8. The R. M. of Idutywa states that the disease was introduced into his district in about 1860, that it is on the increase, and that there are 22 known cases.

9. The R. M. of Willowdale states that it was only very lately introduced into his district by the Hottentots, that it is spreading, and that there are 37 cases known.

10. The R. M. of Kentani says that the disease appears to have been introduced by Hottentots from the Cape Colony in about 1836, that there is no evidence that it is on the increase, and that there are 18 cases known.

11. The R. M. of Elliotdale says that the disease was first introduced into his district in about 1883, that it is on the increase, and that there are now 8 cases known.

12. The R. M. of Mganduli says that leprosy made its appearance in his district about eight years ago, that it is rapidly on the increase, and that there are now 40 cases known.

13. The R. M. of Engcobo states that the disease was probably introduced into his district by the Hottentots, that it is on the increase, and that there are 68 cases known.

14. The R. M. of St. Mark's states that leprosy was introduced into his district by the Hottentots about the middle of the present century, that there is no evidence that it is on the increase, and that there are 15 cases known.

15. The R. M. of Cala states that the disease was introduced into his district by the Hottentots, that it is not on the increase, and that there is only one case known in the district.

16. The R. M. of Tsolo says that leprosy was discovered in his district in 1874 for the first time, and that it is not on the increase. In 1886 there were 11 cases, now there are only 4 known.

17. The R. M. of Maclear says that leprosy was supposed to have been introduced into his district by the Hottentots (Griquas), that it is not on the increase, and that there are only 5 cases known at present.

18. The R. M. of Mount Fletcher says that leprosy was introduced into his district about 1860 (probably 1863), that it is on the increase, and that there are 14 cases known at present.

19. The R. M. of Matatiele thinks that leprosy was introduced into the district from Basutoland about thirty years ago, but it was more probably introduced by the Griquas, who passed through a portion of Basutoland in travelling from their old home to the new. The disease is on the increase, and there are about 20 cases in the district at present.

The Transvaal Republic.

This republic was formed in 1835 by the Boers, who, to escape from the trammels of civilisation, were continually moving onwards into the then uncivilised portions of the African continent. A large portion of the country claimed by this republic is still in the hands of the natives, and is almost unknown to Europeans. Leprosy exists among these natives, but to what extent it is impossible to say. Even in the more civilised parts, as no proper census has been taken, it is difficult to arrive at the truth about leprosy. A small hospital for lepers has long existed close to Pretoria, the chief town of the republic, in which about ten unfortunate lepers find a refuge.

Now that the leprosy question has been brought prominently before the world, each country is awakening to the

fact that the evil is amongst its people, and that it is spreading.

The Transvaal Government has now enlarged its leper asylum, and the number of lepers which it now accommodates is upwards of twenty; but this cannot be taken as a criterion of the number of lepers existing in the country, for as there is no law making segregation compulsory, only the paupers avail themselves of the shelter and privileges of a home.

Natal.

Leprosy appears to have been introduced into this colony at a comparatively recent date, as no mention is made of the disease until the middle of the present century.

The following account of its introduction is the one on which credence is placed by both the Europeans and natives of Natal. It appears that in about 1840 two native men left the colony of Natal for the Cape Colony, where in Grahamstown they worked for three years. Whilst in Grahamstown they lived with a coloured woman who was suffering from leprosy; this woman they left behind them when they returned to Natal in 1843. On their return to their native land the two men married healthy native women. Within two years of their return to Natal they developed leprosy, and one of the men died of the disease within three years.

Thus leprosy was introduced into the kraal where these men resided, and from this point as a centre the disease spread from kraal to kraal and from tribe to tribe, till at the present time there is not a single tribe free from disease. Every tribe in the colony—and there are many of them—is infected to a greater or less extent, but the most cases are still found in the tribe to which the two original lepers belonged.

In 1886 the disease had become so prevalent that a Commission was appointed by the Government to inquire into the matter, and to devise some means to check its spread. Natal, like the other South African states, has a large native population, and as leprosy is at present confined to

the blacks, the information obtainable is not very reliable, so that the number of cases reported to the Commission was probably far short of the actual number then existing; nevertheless the Commission were able to obtain records of upwards of 100 lepers, so that in forty-three years the number of lepers had increased from 2 to 100 or more.

The Hon. the Under Secretary of Natal, Mr. Bird, informs me that since 1886 there have been 132 additional cases of leprosy reported to the Government, so that there are at present over 200 lepers in that colony, all natives.

A mild form of segregation is now being enforced, and it is hoped that this will check the spread of the disease.

British Bechuanaland.

The authorities in Bechuanaland have made an arrangement with the Cape Colonial Government by which all the lepers from Bechuanaland are brought to Robben Island for isolation and treatment.

The number of cases admitted into this asylum since this arrangement was made is only seven, all coloured people, so that it is evident the disease is not very prevalent in that colony, which may be accounted for by the dryness of the climate, and the consequent sparseness of the population.

Leprosy was probably introduced into Bechuanaland by nomadic Bushmen from the Orange Free State.

Pondoland (recently annexed to the Cape Colony).

I have learned from the magistrates stationed in Pondoland that there are no lepers in that country, which can be accounted for by the fact that all suffering from the disease are excluded from the country by the chiefs under penalty of death.

Zululand and Swaziland.

No reliable information can be obtained as to the prevalence of leprosy in these native territories, but that it does exist to a considerable extent is well known; whether it is on the increase or not is impossible to say, but judging from the habits of the other uncivilised natives I should

say not, for, as a rule, the natives kill or ostracise all objectionable persons.

In conclusion I may state that in a country like South Africa, with its large native population, it is almost impossible to obtain thoroughly reliable information, especally about a disease like leprosy; but I have made very careful inquiries, and have obtained the information contained in this paper from reliable sources.

I am especially indebted to the Hon. J. Rose-Innes, C.M.G., Under Secretary of Native Affairs of the Cape Colony, who obtained the information from the various magistrates in Griqualand East and the Transkeian Territories for me; and also to Mr. Bird, Under Secretary of Natal, the State Secretary of the Transvaal Republic, and the British Resident in Basutoland.

Roughly speaking, the number of lepers at present known in the various South African colonies and states is as follows:

Cape Colony proper	600
Griqualand East	250
Transkeian Territories	357
Basutoland	250
Bechuanaland	10
Natal	200
Orange Free State	150
Transvaal Republic	30
Total number	1750

The facts and figures quoted clearly prove—

(1) That leprosy has been known in the Cape Colony since the middle of the last century.

(2) That the disease has made rapid progress from the beginning of this century, but more especially during the last fifty years.

(3) That the Hottentots, of whom the Griquas are an offshoot, were, on account of their nomadic nature, the cause of the spread of the disease amongst the Bantu races.

(4) That the disease is much more prevalent in South Africa than is generally known.

The various Governments have awakened to the fact that something must be done to check the spread of the disease.

The Cape Colony, the Orange Free State, Bechuanaland, and Natal have each adopted some form of segregation, and it is hoped that by this united action an effectual check will be put upon the spread of the loathsome disease.

Table showing the Number of Lepers admitted, discharged, and died in the Robben Island Leper Asylum each year since its formation in 1845 *until the* 30*th June,* 1894.

Date.	Admissions.	Discharges.	Deaths.
1845	37	—	—
1846	35	—	—
1847	17	—	—
1848	26	—	—
1849	18	—	—
1850	14	—	—
1851	7	—	—
1852	13	—	—
1853	22	5	15
1854	14	9	9
1855	17	10	12
1856	21	15	12
1857	18	7	11
1858	18	6	11
1859	19	6	13
1860	16	2	10
1861	30	15	15
1862	20	4	8
1863	23	15	11
1864	13	3	9
1865	35	17	18
1866	19	7	10
1867	20	6	14
1868	21	6	13
1869	15	10	11
1870	25	11	15
1871	27	27	9
1872	17	18	9
1873	17	6	7
1874	19	6	15
1875	13	13	9
1876	17	9	5
1877	26	11	8
1878	19	10	7
1879	13	10	7
1880	15	2	10

Date.	Admissions.	Discharges.	Deaths.
1881	24	4	12
1882	21	15	17
1883	23	13	5
1884	25	5	10
1885	14	0	13
1886	21	5	9
1887	51	13	12
1888	40	7	14
1889	51	11	32
1890	21	8	23
1891	52	2	21
1892	338	7	40
1893	250	12	114
1894	52	7	37
Total . .	1697	375	776

Robben Island;
November 14*th*, 1894.

ON SPONTANEOUS RECOVERY FROM LEPROSY.

BY

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ON SPONTANEOUS RECOVERY FROM LEPROSY.

A MEDICAL man in the practice of his profession is very apt to run in a groove, from which it is difficult to escape; he runs with the crowd in a beaten track, and the longer he runs the more difficult it is for him to leave it. The track may be a fairly broad one, but few men have the temerity to leave it and explore the unknown regions adjoining it: for the track is bright and clear, and the way easy; but the land is dark, and full of the pitfalls of criticism and controversy.

It is certainly a very safe course to adopt to drift with the stream, but in my opinion it is the greatest stumbling-block to the progress of medical science.

If a medical man in the daily routine of work sees in this forbidden region dim and uncertain shadows, let him pursue them, and see what more light they can throw upon the path, and if it is possible by the knowledge thus gained to remove some of the rocks which encumber the road of medical practice. Surely it is the duty of every medical man to try and make this broad path smooth and easy, not only for the sake of those who have to tread after him, but for the unfortunate patients on whose behalf the track has been so well worn.

A few months ago, at a Medical Congress held in Cape Town, I ventured to state that in my opinion a certain number of lepers were self-cured; but I was off the beaten track, and my views met with opposition. Some medical men stated that they did not recognise the term; others, that it was an unhappy term; others, that it was a contradiction;

and others, that they were not prepared to acknowledge the fact.

I had, however, carefully studied the subjects, and by following certain ideas had come to the conclusion that, notwithstanding these adverse criticisms, my observations were correct.

The matter is such an important one, not only medically but socially and politically, and to the patients themselves, that I have chosen it as the subject of my paper.

I am of opinion that a certain number of lepers are actually cured, and if I can only prove the correctness of my opinion to the satisfaction of the medical profession, what a world of hope will be infused into the heart of every leper in the world! and with the hope will come contentment and happiness, where now there is misery and despair.

In discussing the subject I shall first deal with the objections, and then give my reasons for coming to the conclusions that there are self-cured lepers.

(1) Some medical men do not recognise the term. I dare say not, as the term is a new one; but the fact of not recognising a term is, in my opinion, a mere quibble, and is hardly worthy of consideration.

(2) Some say it is an unhappy one. This may be true, but in my opinion it is a very expressive one, and provided the term conveys the meaning attached to it the objection is a frivolous one.

(3) Others say it is a contradiction. I said that leprosy was not amenable to treatment, yet in certain cases the disease was cured. I adhere to that statement. All who have had to treat leprous patients must agree with me that medical treatment, be it ever so skilful, is of little avail. In certain ways the disease may be temporarily arrested, but as a rule it goes on steadily from bad to worse, until death removes the patient from a life that is almost worse than death.

Many drugs have been tried, and many treatments adopted, but without any permanent benefit to the patients. Some medical men claim to have actually cured the disease, but of this I am extremely sceptical, so that I am still of opinion that medical treatment is useless and powerless, and

of no use for the cure of leprosy. In a few cases, however, as I shall presently endeavour to prove, the disease is cured spontaneously, not from the effects of external applications or internal treatment, but from causes at present unknown, which exist within the body itself; the system throws off the disease—it cures itself; and therefore I am of opinion that I am justified in calling such cases "self-cured."

(4) Some medical men do not acknowledge the facts; they agree that in certain cases the disease is arrested, but they cannot allow that they are cured. This is naturally a grave objection, and one, moreover, which it is by no means easy to upset. On a point of this nature one may have very strong views, yet be unable to substantiate them by conclusive arguments. The term "cure" is itself a controvertible one. The meaning of the term is "restoration to health or soundness;" but every medical man knows that, strictly speaking, every "cured" patient cannot be said to have been restored to perfect health. The system is weakened or changed, or the body is left in an unsound state. Remove a tumour from a patient, the scar remains, though the patient is said to be cured; and so with any disease. It is very seldom that the system is attacked by an acute disease without something remaining behind to the detriment of the system; thus the cure of a patient does not always mean the restoration of the body to a perfect state, or of absolute health to the system, but it means something much more imperfect and indefinite. Smallpox leaves its indelible mark, and yet it is considered cured though the mark remains; and yet because leprosy leaves its mark, it is considered arrested only, and not cured. Of these sceptics I should like to ask the following:

If you have been treating a disease, and have brought it to such a condition that the active symptoms disappear never to return, would you not consider it cured?

If phthisis, arrested in childhood, has not shown itself in adult life, would you not consider it cured?

If syphilis, properly treated in youth, does not show symptoms, in age, of recrudescence, would you not be justified in saying that the disease had been eradicated from the system?

If, after the removal of a malignant growth, it does not

recur, say within ten years, would you not be content to consider it a cure? Yet you, who must consider such cases cured, will not allow that leprosy is cured, though it passes into the same stage,—for after a certain period the ulceration in anæsthetic leprosy ceases never to recur; in fact, the disease is cured as effectually and completely as any cure is ever made in the practice of medicine. Some medical men say, "We acknowledge that such cases exist, but they are only arrested, and if you wait long enough the ulceration will start afresh." But surely there is a limit to everything. Why be Micawbers in dealing with lepers? Why keep the patients languishing in an asylum until death removes them from your expectant eye, watching for something to turn up—watching for the ulceration to recur? The ulceration has ceased, and if you keep the patient in the hospital waiting for the ulcers to break out again, he will die probably of old age before you are satisfied.

When I first took charge of the leper asylum here I was struck with the fact that, as a rule, the disease was much more acute and rapid in its course than was generally supposed, and that most of the patients died within a very few years of their admission; a few, however, after a battle for life, seemed to regain their health, and then lived on to old age unless their life was cut short by intercurrent affections.

I at once inquired into this matter, and into the cause of this apparent anomaly, and was forced to the conclusion that, with few exceptions, these long-lived cases were free from disease.

Leprosy exists here in four forms—the anæsthetic, tubercular, mixed, and syphilitic,—each form running a distinct course. Self-cured cases occur only in anæsthetic leprosy, therefore I shall confine my remarks mainly to this form of the disease, though in passing I should like to draw your attention to a curious and most interesting fact in connection with the tubercular form of the disease. In anæsthetic leprosy medical treatment is powerless to cure the disease, but in my opinion the disease is occasionally self-cured; in tubercular leprosy the disease is never self-cured, but I believe the time is not far distant when this form of the disease will be cured by proper medical treatment. Tuber-

cular leprosy is due to the presence of bacilli and their products in the tissues of the body. I have noticed that the course of this form of the disease is often temporarily modified by intercurrent inflammatory affections. An attack of measles arrests the disease, and causes the tubercles to subside in some cases for years; smallpox supervening on tubercular leprosy checks the latter disease for a time, if not permanently; erysipelas always causes the tubercles in the part attacked to subside. These are most interesting facts, and I think they point to the way in which this form of the disease in its early stages will yet be cured. Leprosy, measles, smallpox, and erysipelas are all due to bacilli, and in each the disease manifests itself by preference in the face first; therefore it is probable that the bacilli themselves are related or are influenced by the same forces. We do not know how these or any other bacilli live in the body; we do not know, for instance, from which secretions or tissues the bacilli draw their nourishment; but we do know that certain conditions are necessary for their growth in life, and we do know that each class of bacilli requires its own conditions. It is probable that the bacilli of these diseases are nourished and supported by the same secretions and tissues in the body. We know that in the battle for existence the stronger always pushes the weaker to the wall, be it in man, animal, or plant. Measles, smallpox, and erysipelas are acute diseases, and therefore the bacilli are more active and virulent than those of the slow-growing leprosy; hence it is probable that the stronger bacilli of the intercurrent affections push the weaker bacilli of leprosy to the wall; but, be this as it may, the fact remains, that by the introduction of these bacilli into the system of a leprous patient the disease is checked for a time, *i. e.* the leprous bacillus is in some way acted upon to its own detriment, but to the benefit of the patient. This being so, would it not be possible, by some system of cultivation of, and vaccination with, these bacilli, not only to check the growth of the leper bacillus, but to entirely destroy it, and thus remove it from the body? I am of opinion that the solution of the leprosy question will be found in the use of the vaccinator's lance, and I believe that it is only by the introduction of an antagonistic bacillus

into the system of a leprous patient that the disease will be cured.

In anæsthetic leprosy the symptoms are due to disease of the nerves. In a recent case the affected nerves are thickened and soft, due to the sheath being injected and swollen by inflammatory exudations. At this stage the patient, as in ordinary neuritis, suffers acute neuralgic pains extending to the fingers; the nerve itself is highly sensitive, though sensation in the parts supplied by the nerve may be partially diminished. At a later stage the nerve becomes smaller, firmer, and nodulated, due to the contraction of the inflammatory products; the contraction causes pressure upon the nerve-fibres and their subsequent destruction; the nerve-fibres are at first irritated, thus causing contraction of the fingers and toes; *pari passu* with the destruction of the nerve-fibres comes anæsthesia of the parts. In the last stage the nerve-fibres are destroyed, and all that remains is a fibrous band—a remnant of the original sheath. The nerve-supply to the extremities is thus destroyed and lost; the bones through these atrophic changes become necrosed, and are removed by absorption or ulceration.

The symptoms thus described are exactly what would be expected from the nature of the disease; they are, in fact, identical with the history of the symptoms due to the destruction of a nerve from any cause. In an ordinary typical case of anæsthetic leprosy both hands and both feet are equally affected, and both seventh nerves are paralysed,—in fact, it is a symmetrical disease. The disease runs a rapid course, and the necrosis and ulceration cause so much irritation, and there is such a drain on the system, that few patients survive it. In a few cases, however, the necrosis ceases, the ulceration stops, and the wounds heal, though of course the lost parts are not restored.

In these so-called self-cured cases the disease does not break out again; the anæsthesia may be, and is generally, complete and permanent, but the ulceration has ceased—never to return. We do not know why the ulceration ceases; we cannot detect any alteration in the blood or tissues to account for the change; we cannot do anything to

bring about or accelerate this much-to-be-desired result; the disease takes its own course and works out its own cure, and if the patient can stand the terrible drain on his system the disease will certainly become self-cured.

There is one point in connection with these self-cured cases that deserves special notice here, and that is the presence in many of them of a perforating ulcer.

On page 17, vol. ii, ninth edition of 'Erichsen's Surgery,' under the heading of "Perforating Ulcer of the Foot," is described a case typical of the perforating ulcer found in leprosy, but in this case the ulcer is due to ordinary disease of the nerves supplying the part.

Perforating ulcers, therefore, are not confined to leprosy, but in all cases are due to disease of the nerves.

I contend that the perforating ulcer in leprosy, though one of the symptoms of the disease, is by no means necessarily a sign that the disease exists, for I am of opinion that the ulcer often remains long after the disease itself has been cured. The bones become necrosed through a defect in their nerve-supply, and they become virtually foreign bodies, whose removal is necessary before ulceration can cease. Many of the diseased bones, on account of their size or situation, or for other obvious reasons, cannot be removed at once in the ordinary way by absorption or ulceration, and therefore remain *in situ* a relic of the past, but not a sign of active disease.

I removed a spiculum of dead bone from the tibia of a man who, twenty years previously, had suffered from syphilitic periostitis, and yet no one would be justified in saying, because the dead bone had not been removed earlier, that the patient had been suffering from syphilis all those years.

Another patient, as a complication of typhoid fever, had pneumonia which developed into fibroid phthisis, of which he died ten years after, yet no one would be justified in saying that this patient was suffering from typhoid fever all those years.

The necrosed bone causing the perforating ulcer in leprosy is certainly due to changes produced by the disease, but no one can be justified in saying that until the dead bone is removed, the patient is suffering from the disease itself.

The fibroid phthisis was a result of the typhoid fever, but was not the fever itself; the necrosis causing the perforating ulcer is a result of leprosy, but it is not the disease itself.

To prove that the ulcer is only a result of the disease, and not an active symptom, remove the dead bone by operation, and the wound will heal as readily as in ordinary necrosis, and the ulcer will disappear. The facts appear so simple, and yet the presence of the perforating ulcer is the stumblingblock over which so many fall; they cannot be made to understand that though this special form of ulceration commences while the disease is active, yet it may continue long after the disease has ceased to exist.

In my opinion, therefore, the presence of the perforating ulcer in leprosy is no proof that the disease is present.

It may be asked, at what point does the patient cease to be a leper? I am of opinion that the patient ceases to be a leper when the leper bacillus leaves the body, for to be a leper without having the leper bacillus in the body is obviously impossible.

Now can we in any way prove that the bacillus leaves the body, and at what time the disease becomes self-cured?

We know that the disease is due to a bacillus, and we know how this bacillus acts to give rise to such terrible suffering and deformity; we know, further, that there is an acute stage when the bacillus is apparently very active, and we know that this stage is succeeded by one of at any rate quiescence. In all diseases due to bacilli the disease follows one of two courses: (1) the disease runs a rapid course ending in recovery or death; or (2) the disease, beginning insidiously, becomes more and more severe until it ends in death.

In the first form there is a hope of life; in the second form the bacillus, though not such an active or virulent one, never leaves the body, but invades more and more of the tissues.

Under the first head typhoid fever may be classed; under the second, phthisis.

Now under which of these two heads may leprosy be classed? It is a disease which runs a rapid course, and in

a large majority of cases ends in death; but a few of the cases get over the acute attack, and, so far as the disease is concerned, may live for ever, *i. e.* the cause of the disease has left the system as surely as the bacillus of typhoid fever leaves the body after it has run its course. Leprosy is not such an indefinite disease as one would make out,—it runs a definite course, and the patient then dies or recovers. The reason why it has hitherto been considered so indefinite is the non-recognition of the self-cured cases.

Expressions like this so often occur in works on leprosy: "The duration of the disease is generally about eight years, but in some instances it has been known to last sixty years." The study of the disease to a novice is a mystery to unfold, whereas in reality it is a simple disease. Like all diseases, the course it takes is modified by circumstances; it may end fatally or otherwise in about six years, or it may continue a little longer, but, so far as my experience goes, in the anæsthetic form of the leprosy, the maximum duration of the disease is about eleven years from the time that the first symptoms appear, or, including the incubating period, about thirteen years. With few exceptions, all the cases which exceed this period are no longer lepers.

I have prepared three tables showing the duration of the disease in the Cape Colony. Since 1871, and until the 30th June, 1894, excluding the patients who were discharged from time to time, there were admitted into the Asylum on Robben Island 965 leper patients. Of these 402 died.

There are now in the hospital 563 leper patients.

44	lepers have been	in the hospital	less than	1 year.
196	,,	,,	between 1—	2 years.
248	,,	,,	,, 2— 3	,,
19	,,	,,	,, 3— 4	,,
6	,,	,,	,, 4— 5	,,
21	,,	,,	,, 5— 6	,,
4	,,	,,	,, 6— 7	,,
8	,,	,,	,, 7— 8	,,
5	,,	,,	,, 8— 9	,,
1	,,	,,	,, 9—10	,,
3	,,	,,	,, 10—11	,,
1	,,	,,	,, 12—13	,,

1	leper	has	been	in the hospital between	13—14 years.
1	,,	,,	,,	15—16	,,
1	,,	,,	,,	16—17	,,
1	,,	,,	,,	17—18	,,
1	,,	,,	,,	19—20	,,
2	,,	,,	,,	21—22	,,

This shows that out of this large number of patients at present in the wards, only eight have been here longer than eleven years.

Of the 402 patients who have died in the asylum since 1871—

151	died	within	1	year of admission.
141	,,		2	years ,,
33	,,		3	,, ,,
25	,,		4	,, ,,
16	,,		5	,, ,,
12	,,		6	,, ,,
6	,,		7	,, ,,
10	,,		8	,, ,,
5	,,		9	,, ,,
1	,,		11	,, ,,
1	,,		13	,, ,,
1	,,		16	,, ,,
402				

So that out of 402 patients who died, only two lived longer than eleven years in the hospital.

From these tables we learn that the duration of the disease is within eleven years, and that only a very small percentage of the patients suffering from leprosy live longer than eleven years after admission into hospital.

There are, however, a few patients in the asylum who were admitted before 1871.

Of the patients in the hospital I have been able to obtain fairly reliable histories of 516 cases. Of these cases—

4	contracted	the	disease	in 1894.
19	,,	,,	,,	1893.
30	,,	,,	,,	1892.

44	contracted	the	disease	in 1891.
54	,,	,,	,,	1890.
41	,,	,,	,,	1889.
26	,,	,,	,,	1888.
55	,,	,,	,,	1887.
22	,,	,,	,,	1886.
35	,,	,,	,,	1885.
26	,,	,,	,,	1884.
18	,,	,,	,,	1883.
32	,,	,,	,,	1882.
101	,,	,,	,,	before 1882.

Of these 101 cases who have had the disease longer than eleven years, I have made the following extracts from the case books.

Explanation of Abbreviations.

T. Toes.	Cont. Contracted.	F. Fingers.	Ab. Abbreviated.
H. Hand.	N. S. No sores.	Hs. Hands.	P. U. Perforating ulcer.
Ft. Feet.	Fts. Feet.	Tum. Tumified.	

Females.

No.	Name.	Form.	Contracted.	Remarks.
4	A. K.	A.	1879	T. gone, F. cont., N. S.
13	M. J.	,,	1870	T. and F. cont. and ab., N. S.
14	C.	,,	1872	R. H. amp., L. H. F. gone, Ft. gone, N. S.
16	K. A.	,,	1881	Hs. cont. and contorted, N. S.
17	K. Z.	,,	1872	F. and T. gone, N. S.
18	J.	,,	1877	F. and T. gone, N. S.
79	L. S.	,,	1877	H. cont. and deformed, N. S.
80	L. B.	,,	1860	F. and T. gone, N. S.
82	S. H.	,,	1870	F. and T. gone, P. U. one foot.
87	S. S.	,,	1859	F. and T. ab., N. S.
88	T. A.	,,	1860	F. gone, N. S.
90	S. A.	,,	1877	H. cont. and contorted.
91	W. S.	,,	1878	F. cont., T. gone, N. S.
96	L. H.	,,	1876	H. cont. and ab., N. S.
103	M. L.	,,	1881	F. cont. and ab., P. U. on foot.
108	H. R.	,,	1871	F. and T. ab., P. U. sole foot.
112	L. F.	,,	1871	H. comp. but cont., T. ab., N. S.
114	N. R.	,,	1875	H. ab. and shapeless, ankle-jt. gone, N. S.
121	H. H.	,,	1874	F. and T. ab., P. U. one foot.
136	M. F.	,,	1876	F. cont., P. U. one foot.

No.	Name.	Form.	Contracted.	Remarks.
140	F. P.	A	1851	F. and T. gone, P. U. one foot.
151	C.	„	1874	F. cont. and contorted, T. gone. N. S.
156	K.	„	1881	F. and T. gone, N. S.
158	A. A.	„	1876	F. cont. and ab., T. gone, N. S.
159	S. S.	„	1837	F. and T. gone, N. S.
160	E. P.	„	1880	F. gone except one thumb, T. gone, N. S.
164	R.	„	1873	Hs. and Ft. gone, N. S.
198	M.	„	1855	R. H. F. gone, L. H. ab., T. ab., N. S.
202	U.	„	1880	F. and T. ab., N. S.
220	S. S.	„	1874	F. cont., T. ab., P. U. one foot.
		Males.		
1	C. M.	A.	1878	F. and T. ab. and cont., N. S.
3	C. M.	„	1878	F. and T. cont. and ab., N. S.
4	C. B.	„	1878	F. and T. cont. and ab., N. S.
8	C. W.	„	1860	F. ab. and cont., T. gone, N. S.
9	F. R.	„	1877	F. and T. cont. and ab., P. U. one foot.
14	C. M.	„	1854	F. cont., ab. and tum., N. S.
27	H.	„	1870	F. and T. cont. and ab., P. U. one foot.
29	D. S.	„	1867	F. and T. cont., P. U. one foot.
30	J. H.	„	1870	F. and T. cont. and ab., P. U. one foot.
33	H. K.	„	1873	F. and T. cont. and ab., P. U. one foot.
35	A.	„	1877	F. and T. cont., P. U. one foot.
36	A. S.	„	1873	F. and T. cont. and ab., P. U. one foot.
39	J. J.	„	1875	F. and T. gone, N. S.
40	S.	„	1872	F. and T. cont. and ab., N. S.
52	P. G.	„	1877	F. and T. cont. and ab., P. U. one foot.
63	E.	„	1867	F. cont., N. S.
66	T. S.	„	1869	F. and T. cont., P. U. one foot.
72	C.	„	1875	F. and T. cont. and ab., N. S.
76	D.	„	1875	F. and T. cont., N. S.
84	B.	„	1879	F. and T. cont. and ab., N. S.
92	J. M.	„	1878	F. and T. truncated, N. S.
94	J. G.	„	1879	F. and T. gone, N. S.
102	K.	„	1878	F. and T. cont. and tum., N. S.
106	J.	„	1878	F. ab. and cont., T. ab., P. U. one foot.

No.	Name.	Form.	Contracted.	Remarks.
113	D.	A	1875	F. and T. cont., P. U. one foot.
125	C.	„	1878	F. and T. cont. and ab., P. U. one foot.
132	M.	„	1847	F. and T. ab. and cont., N. S.
133	W.	„	1879	F. and T. ab. and cont., P. U. one foot.
138	D.	„	1871	F. and T. ab. and cont., N. S.
142	C. J.	„	1872	One H. amp., one wrist gone, ankles gone, N. S.
152	T. K.	„	1874	F. and T. cont. and ab., P. U. one foot.
157	H. T.	„	1873	F. cont. and ab., T. ab., P. U. one foot.
165	C.	„	1856	F. and T. cont. and ab., P. U. one foot.
167	F.	„	1867	F. and T. cont. and ab., N. S.
175	M.	„	1877	F. and T. cont. and ab., N. S.
176	G. G.	„	1877	F. and T. cont. and ab., P. U. one foot.
181	B.	„	1880	F. and T. cont. and ab., ulceration continuing.
193	P. S.	„	1860	F. and T. truncated, N. S.
195	G. C.	„	1874	F. and T. cont. and contorted, N. S.
202	M. B.	„	1854	F. and T. cont. and ab., P. U. one foot.
209	K.	„	1870	F. and T. cont. and ab., N. S.
226	S. P.	„	1877	F. and T. cont. and ab., N. S.
231	S. S.	„	1877	F. L. H. ab. and cont., R. H. semi-cont., N. S.
238	D. P.	„	1879	F. and T. cont., N. S., suspicion tuber.
244	B.	„	1873	F. L. H. cont., R. H. semi-cont., N. S.
245	N.	„	1875	F. cont. and ab., P. U. one foot.
252	K. J.	„	1872	F. and T. cont. and tum., P. U. one foot.
253	F. H.	„	1876	F. and T. ab. and cont., N. S.
255	K. B.	„	1878	F. and T. cont., P. U. both feet.
256	K. K.	„	1878	F. and T. cont. and ab., N. S.

Of these 101 cases, 72 are without ulcers; the hands and feet have suffered to a variable extent. Each has been subjected to severe ulceration, but this has ceased in some instances for many years. In one instance only the true leprous ulcerative process is still active, and in 28 cases

perforating ulcers exist in one or both feet. Many of those in which the ulcerative process has ceased are of shorter duration than some of those in which the perforating ulcer is found. As will be seen from the following table some of the patients who now have perforating ulcers contracted the disease upwards of thirty years ago.

1	contracted	the	disease	in 1851.
1	,,	,,	,,	1854.
1	,,	,,	,,	1856.
1	,,	,,	,,	1864.
1	,,	,,	,,	1867.
3	,,	,,	,,	1870.
1	,,	,,	,,	1871.
1	,,	,,	,,	1872.
3	,,	,,	,,	1873.
3	,,	,,	,,	1874.
2	,,	,,	,,	1875.
1	,,	,,	,,	1876.
4	,,	,,	,,	1877.
3	,,	,,	,,	1878.
1	,,	,,	,,	1879.
1	,,	,,	,,	1881.

This shows that the perforating ulcer remains, though the ordinary symptoms of leprosy have ceased to exist for upwards of—in some cases—thirty years.

In all these cases with perforating ulcers the ulcer is due to the necrosed bone, and if the bone were removed by operation the ulcer would readily heal, so that I think it may fairly be conceded that the ulcer is not a sign that the disease exists.

If, therefore, the perforating ulcer is not a sign of the existence of the disease, then those patients who have these ulcers need not necessarily be suffering from leprosy.

Anyone examining the cicatrices and stumps of a person who has passed through the ulcerative stage of leprosy will agree with me that the appearance presented by these is not that of arrestation merely, they appear cured. The tissues are not infiltrated and thickened by inflammatory products, the skin is firm though supple, it is normal in

colour, or pale, never red or irritable. If the parts are injured in any way the wounds heal readily, as in ordinary healthy tissues, and the health of the patient is good.

These are the facts which lead me to believe that the duration of anæsthetic leprosy seldom exceeds eleven years, and that almost all the patients who exceed this period are self-cured cases. They all show the indelible marks and bear signs of having suffered from the loathsome disease, but in my opinion the disease has left them, and they are no longer lepers.

It may at first appear that the percentage of cured cases here is higher than in any other country, but in reality this is not the case. In Norway, according to Thin, the statistical report published in 1882 shows the total number of cured lepers in the previous twenty-five years to be 107. In the same period 4891 patients had died.

Leprosy has existed in this colony since 1756, but asylums for the reception of patients suffering from leprosy were first established in 1817. There was no law compelling lepers to enter asylums, so that their stay in the asylum was purely a voluntary one, and the number of admissions into the asylums is no criterion of the number of lepers existing in the colony.

We know that upwards of 400 patients were admitted into the first asylum, which was opened in 1817 and closed in 1846, when the remaining patients were transferred to Robben Island.

Since 1846 there have been admitted into the Robben Island Asylum 1697 leper patients, of whom over 600 have been admitted since the Leprosy Repression Act was put into force in 1892.

For some years, roughly speaking, there have been about 100 cured cases in the leper wards, but, as will be seen by looking at the list of names, many of these are of long standing.

1	case	contracted the disease	in 1837.
1	,,	,,	,, 1851.
2	,,	,,	,, 1854.
1	,,	,,	,, 1856.

1	case	contracted the disease	in 1857.
1	,,	,,	,, 1859.
4	,,	,,	,, 1860.
3	,,	,,	,, 1867.
1	,,	,,	,, 1868.
1	,,	,,	,, 1869.
7	,,	,,	,, 1870.
3	,,	,,	,, 1871.
6	,,	,,	,, 1872.
6	,,	,,	,, 1873.
6	,,	,,	,, 1874.
6	,,	,,	,, 1875.
4	,,	,,	,, 1876.
12	,,	,,	,, 1877.
11	,,	,,	,, 1878.
7	,,	,,	,, 1879.
3	,,	,,	,, 1880.
4	,,	,,	,, 1881.
7	,,	,,	,, 1882.

It will, therefore, appear that the self-cured cases in the asylum at present are an accumulation of years. The Leprosy Repression Act was put into force in 1892, and lepers of all classes and grades were collected from all parts and sent to Robben Island. Many of these were, in my opinion, self-cured cases, so that it is not fair to conclude that because there are less than 600 lepers in the asylum, and the number of cured cases is 100, the proportion of cases is unduly high here, higher than it is in any other country. According to Thin, during the twenty-five years ending in 1832 there had been sixty-one cures in the Limgegaard Leper Asylum, against 165 deaths, a proportion of about 1 to $2\frac{3}{4}$. In the Robben Island Asylum since 1853 there have been 776 deaths and 100 cures, or a proportion of about 1 to $7\frac{3}{4}$.

I have quoted these figures in order to compare my percentage of cures with those of another asylum, but for obvious reasons the conclusions derived from such figures are not, strictly speaking, of much value, especially as there is

probably some diversity of opinion as to when the disease may be considered cured.

I am of opinion that if it is conceded that the perforating ulcer is not necessarily a sign that the disease is still active, then about 15 per cent. of the anæsthetic cases become cured; if, however, this is not acknowledged, then only about 7 per cent. of the cases become cured.

There are other facts which force me to the conclusion that some lepers do become self-cured, of which the most important are the following:

(1) None of the self-cured cases die of or from the effects of leprosy; the patients may be very much crippled and deformed by the disease, but when it leaves them their general health becomes good; and if they are not carried off by some intercurrent affection they may and generally do live to a ripe old age.

(2) We know that leprosy resists all treatment, nothing that we can do for the patient has any effect on the course of the disease; it goes on from bad to worse, uninterruptedly, until a certain stage is reached when the ulceration ceases.

(3) When the disease reaches this stage the ulcerative process ceases, the ulcers heal spontaneously, and firm cicatrices are formed which do not break down again.

(4) When the anæsthetic parts are accidentally injured or burnt, the wounds are not leprous, and heal very readily.

(5) In the examination of innumerable sections of tissues from these self-cured cases I have not been able to detect the lepræ bacillus.

(6) If the disease is due to the presence of the bacillus, then the patient must be free from the disease when the bacillus is absent.

(7) In a large number of the cases which reach this stage the nerves regain their power to a certain extent, and sensation and the power of motion are restored to the extremities to a variable extent.

(8) Whilst the disease exists there are constant neuralgic pains in the nerves; these pains cease with the self-cure of the disease, and they do not recur.

(9) Authorities all agree that in a few lepers the disease

is permanently arrested, which in my opinion is tantamount to saying the disease is cured.

(10) Some authorities do acknowledge that the disease is in some cases cured.

(11) I believe that the contraction of the tissues resulting from the inflammation caused by the bacillus in the nerves is the cause of the death of the bacilli.

ROBBEN ISLAND;
November 14*th*, 1894.

Robben Island Asylum.—Lepers admitted since 1871.

Showing dates of admission, number admitted each year, how long each patient lived in the asylum before he died, total number of deaths, and number of survivors (last column).

DATE.	ADMITTED.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	DIED.	REMAINING.
1871	15	3	3	1	4	2	...	...	...	1	...	...	...	...	...	...	1	15	
1872	8	3	4	...	1	...	...	...	...	...	...	...	...	...	...	...	...	8	
1873	10	1	6	...	...	...	...	...	...	1	...	...	...	...	...	...	...	8	2
1874	9	4	3	...	...	...	1	...	1	...	...	...	...	...	...	...	...	9	
1875	5	1	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	4	1
1876	12	2	5	1	1	...	2	...	...	1	...	...	...	...	...	...	...	12	
1877	10	4	2	...	1	...	...	2	...	...	...	...	...	...	...	...	...	9	1
1878	14	3	4	3	1	...	...	2	...	...	...	...	...	...	...	...	...	13	1
1879	9	...	3	...	...	2	2	...	1	...	...	...	...	...	...	...	...	8	1
1880	11	3	7	...	...	...	1	...	...	...	...	...	...	...	...	...	...	11	
1881	12	4	5	1	...	...	...	...	...	...	...	...	...	1	...	...	...	11	1
1882	11	5	2	1	...	1	...	1	...	...	...	...	...	...	...	...	...	10	1
1883	14	1	4	...	2	1	2	...	2	1	...	1	...	...	...	...	...	14	
1884	20	2	7	1	3	...	2	...	1	1	...	...	...	...	...	...	...	17	3
1885	12	...	3	1	4	1	...	...	2	...	...	...	...	...	...	...	...	11	1
1886	13	3	...	...	...	1	2	...	2	...	...	...	...	...	...	...	...	8	5
1887	40	6	15	5	2	3	...	1	...	...	...	...	...	...	...	...	...	32	8
1888	29	2	15	6	...	2	...	...	...	...	...	...	...	...	...	...	...	25	4
1889	43	7	6	6	...	3	...	...	...	...	...	...	...	...	...	...	...	22	21
1890	19	1	7	...	5	...	...	...	...	...	...	...	...	...	...	...	...	13	6
1891	37	4	7	7	...	...	...	...	...	...	...	...	...	...	...	...	...	18	19
1892	329	63	18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	81	248
1893	238	28	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	42	196
1894	45	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	44
	965	151	141	33	25	16	12	6	10	5	1	1	...	1	...	...	1	402	563

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REPORT

PRESENTED TO THE

THIRTY-SEVENTH ANNUAL MEETING

OF THE

NEW SYDENHAM SOCIETY

HELD IN LONDON,

AUGUST 2ND, 1895.

WITH

BALANCE SHEET FOR 1894, LIST OF OFFICERS FOR 1895-96,

AND LIST OF PUBLISHED WORKS.

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* *Those marked with an asterisk were not in office last year.*

REPORT

PRESENTED TO THE THIRTY-SEVENTH ANNUAL MEETING OF THE NEW SYDENHAM SOCIETY, HELD IN LONDON, FRIDAY, AUGUST 2ND, 1895.

The works which have been issued for the year 1894 are the following:—

I. Monographs on the Parasites of Malarial Fevers, comprising—1st, that of Professor Marchiafava and Dr. Bignami, of Rome; and 2nd, that of Dr. Mannaberg, of Vienna. Both of these have been liberally illustrated.

II. A Fasciculus of the Atlas of Pathology, comprising the first part of Diseases of the Testis (with letterpress).

III. Dr. Pierre Marie's Treatise on Diseases of the Spinal Cord. Translated by Dr. Lubbock. With many woodcuts.

The Council much regrets that owing to the illness of the Editors, and other unforeseen circumstances, it has been impossible to produce a Fasciculus of the Lexicon of Medical Terms during the year. This work is now again in active progress, and the next fasciculus may be expected shortly. It will conclude the letter P.

The Society owes its best thanks to Dr. Charles, of Rome, for much disinterested labour in connexion with the works just mentioned on the Malarial Parasites.

The works which are proposed as the series for 1895 are as follows:—

The Second and concluding Volume of Sir William Gull's Works, with Portrait and Memoir.

A Fasciculus of the Atlas of Pathology, concluding Diseases of the Testis.

The First Volume of Binz's Lectures on Pharmacology.

A Fasciculus of the Lexicon of Medical Terms.

The Clinical Treatise on Cholalithiasis, recently published by Dr. Naunyn, of Strasburg, has been adopted for translation. The translation has been entrusted to Dr. Archibald Garrod.

The Committee in charge of the National Leprosy Fund, having offered to allow copies of their Prize Essays on Leprosy to be struck off from their type for distribution to the Society's members, the proposal has been gladly accepted. The Essays to be thus published are three or four in number. The cost to the Society will be little more than for paper and binding.

Amongst other works which the Council has in preparation may be mentioned :—

The Second and concluding Volume of Binz's Lectures on Pharmacology.

Selected Papers on Actino-Mycosis. Edited by Dr. Sims Woodhead.

A Volume of Selected Monographs on Gynecological Subjects.

Selected Lectures from Jaccoud's Clinical Medicine.

Selections from the Works of Professor Fournier.

A Volume of Selected Monographs on Diseases of the Ear.

A Series of Volumes of Selected Clinical Lectures on Medicine and Surgery from various (Foreign) sources.

Four Prize Essays on subjects connected with Leprosy.

The Council and the Society's officials have recently devoted much attention to the endeavour to obtain the services of Local Secretaries in towns not hitherto thus represented. Considerable success has attended these efforts, and thirty new Local Secretaries have been appointed during the year. Much yet remains to be done in making the advantages which the Society offers more widely known in the profession, and the Council trusts that all members will recognize a duty in this direction.

The Society's accounts have been audited as usual. The balance carried over from last year was £62 2s. 8d.

THE NEW SYDENHAM SOCIETY.—BALANCE SHEET FOR 1894.

Receipts.

	£	s.	d.	£	s.	d.
Balance in hand brought forward from last account ..				294	0	11
	£	s.	d.			
Subscriptions..10 for 1870 to 1887..	10	10	0			
,, 15 ,, 1888	15	15	0			
,, 14 ,, 1889	14	14	0			
,, 17 ,, 1890	17	17	0			
,, 46 ,, 1891	48	6	0			
,, 169 ,, 1892	177	9	0			
,, 587 ,, 1893	616	7	0			
,, 1152 ,, 1894	1209	12	0			
,, 18 ,, 1895	18	18	0			
Say 2028 Subscriptions.....	2139	8	0			
Back Volumes	137	12	4			
Repayment of postage, &c., charged in Agent s Disbursement Account	49	19	4			
	2316	19	8			
Less deductions by Local Secretaries	22	1	11			
				2294	17	9
Contributions from the family of the late Sir W. Gull towards the expense of publishing his works.....				250	0	0
				£2838	18	8
To Balance brought down				62	2	8

Expenditure.

	£	s.	d.	£	s.	d.
Artists, Editors and Translators, Printers, Paper, and Bookbinders..				2163	14	0
One year's rent for warehousing stock				30	0	0
Expenses of Management:—	£	s.	d.			
Agent's Salary and Commission.....	239	11	9			
Disbursements (chiefly carriage of books)	103	17	3			
Advertisements	167	12	0			
Fire Insurance of Stock	13	15	0			
Treasurer's Expenses (one year).....	2	15	0			
Assistant Secretary	55	11	0			
				583	2	0
				2776	16	0
Balance in hand, 31st Dec., 1894				62	2	8
				£2838	18	8

W. SEDGWICK SAUNDERS, *Treasurer.*

Examined, compared with the vouchers, and found correct, the balance on 31st Dec., 1894, being £62 2*s.* 8*d.*, at an audit held this 11th day of July, 1895.

EDWARD CLAPTON
JOHN CROFT
F. M. CORNER
} *Auditors.*

LONDON, July, 1895.

CLASSIFIED LIST

OF THE

SOCIETY'S PUBLICATIONS.

Medicine.

PALUDISM. By Dr. A. Laveran. Translated by J. W. Martin, M.D., F.R.C.P.E.

"We think the members of the medical profession in the United Kingdom and English-speaking countries generally are under a debt of gratitude to the New Sydenham Society for bringing under their notice one of the freshest and ablest monographs of recent years."—*Dublin Medical Journal*, April, 1894.

"The New Sydenham Society has done well in issuing a translation of the monograph by Dr. Laveran, in which the whole subject is treated with remarkable lucidity and scientific precision."—*Lancet*, July 21, 1894.

A COLLECTION OF THE PUBLISHED WRITINGS OF SIR WILLIAM WITHEY GULL, Bart., M.D., F.R.S., Physician to Guy's Hospital. Vol. I. Medical Papers. Edited and Arranged by Theodore Dyke Acland, M.D.

MONOGRAPHS ON MALARIA:—

On Summer-Autumn Malarial Fevers. By Dr. E. Marchiafava and Dr. A. Bignami. Translated from the first Italian Edition by J. Harry Thompson, M.A., M.D.; and

The Malarial Parasites. A Description based upon observations made by the author and other observers. By Julius Mannaberg, M.D. Illustrated by four Lithographic Plates and six Charts. Translated from the German by R. W. Felkin, M.D., F.R.S.E.

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LIST OF PUBLISHED WORKS

Arranged according to the Year of Issue.

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1. DIDAY on Infantile Syphilis.
2. GOOCH on Diseases of Women.
3. MEMOIRS on Diphtheria.
4. VAN DER KOLK on the Spinal Cord, &c.
5. MONOGRAPHS (Kussmaul and Tenner, Graefe, Wagner, &c.)

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6. Dr. BRIGHT on Abdominal Tumours.
7. FRERICHS on Diseases of the Liver. Vol. I.
8. A YEARBOOK for 1859.
9. ATLAS of Portraits of Skin Diseases. (1st Fasciculus.)

1861. (*Third Year.*)

10. A YEARBOOK for 1860.
11. MONOGRAPHS (Czermak, Dusch, Radicke, &c.)
12. *CASPER'S Forensic Medicine. Vol. I.
14. *ATLAS of Portraits of Skin Diseases. (2nd Fasciculus.)

1862. (*Fourth Year.*)

13. FRERICHS on Diseases of the Liver. Vol. II.
15. A YEARBOOK for 1861.
16. CASPER'S Forensic Medicine. Vol. II.
17. ATLAS of Portraits of Skin Diseases. (3rd Fasciculus.)

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18. KRAMER on Diseases of the Ear.
19. A YEARBOOK for 1862.
20. NEUBAUER and VOGEL on the Urine.

VOL. 1864. (*Sixth Year.*)

21. CASPER'S Forensic Medicine. Vol. III.
22.*DONDERS on Accommodation and Refraction of the Eye.
23. A YEARBOOK for 1863.
24. ATLAS of Portraits of Skin Diseases. (4th Fasciculus.)

1865. (*Seventh Year.*)

25. A YEARBOOK for 1864.
26. CASPER'S Forensic Medicine. Vol. IV.
27.*ATLAS of Portraits of Skin Diseases. (5th Fasciculus.)

1866. (*Eighth Year.*)

28. BERNUTZ and GOUPIL on the Diseases of Women. Vol. I.
29. ATLAS of Portraits of Skin Diseases. (6th Fasciculus.)
30. HEBRA on Diseases of the Skin. Vol. I.
31. BERNUTZ and GOUPIL on Diseases of Women. Vol. II.

1867. (*Ninth Year.*)

32. BIENNIAL Retrospect of Medicine and Surgery.
33. GRIESINGER on Mental Pathology and Therapeutics.
34.*ATLAS of Portraits of Skin Diseases. (7th Fasciculus.)
35. TROUSSEAU'S Clinical Medicine. Vol. I.

1868. (*Tenth Year.*)

36. THE Collected Works of Dr. Addison.
37. HEBRA on Skin Diseases. Vol. II.
38. LANCEREAUX'S Treatise on Syphilis. Vol. I.
39. ATLAS of Portraits of Skin Diseases. (8th Fasciculus.)
40. CATALOGUE of Atlas of Skin Diseases. (First Part.)

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41. LANCEREAUX'S Treatise on Syphilis. Vol. II.
42. TROUSSEAU'S Clinical Medicine. Vol. II.
43. BIENNIAL Retrospect of Medicine and Surgery.
44. ATLAS of Portraits of Skin Diseases. (9th Fasciculus.)

1870. (*Twelfth Year.*)

45. TROUSSEAU'S Lectures on Clinical Medicine. Vol. III.
46. NIEMEYER'S Lectures on Pulmonary Consumption.
47. STRICKER'S Manual of Histology. Vol. I.
48. ATLAS of Portraits of Skin Diseases. (10th Fasciculus.)

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1871. (*Thirteenth Year.*)

49. WUNDERLICH'S Medical Thermometry.
50. BIENNIAL Retrospect of Medicine and Surgery.
51. TROUSSEAU'S Clinical Medicine. Vol. IV.
52. ATLAS of Portraits of Skin Diseases. (11th Fasciculus.)

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53. STRICKER'S Manual of Histology. Vol. II.
54. RINDFLEISCH'S Pathological Histology. Vol. I.
55. TROUSSEAU'S Clinical Medicine. Vol. V.
56. ATLAS of Portraits of Skin Diseases. (12th Fasciculus.)

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57. STRICKER'S Manual of Histology. Vol. III.
58. RINDFLEISCH'S Pathological Histology. Vol. II.
59. BIENNIAL Retrospect of Medicine and Surgery.
60. ATLAS of Portraits of Skin Diseases. (13th Fasciculus.)

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63. ~~63~~. ATLAS of Portraits of Skin Diseases. (14th Fasciculus.)
64. ~~64~~. HEBRA on Skin Diseases. Vol. IV.

1875. (*Seventeenth Year.*)

65. BIENNIAL Retrospect of Medicine and Surgery.
66. CATALOGUE of Atlas of Skin Diseases. (Second Part.)
67. ~~67~~. ATLAS of Portraits of Skin Diseases. (15th Fasciculus.)
68. CLINICAL Lectures by various German Professors. Vol. I.
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70. ~~70~~. SMELLIE'S Midwifery, by McClintock. Vol. I.
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72. *CHARCOT'S Clinical Lectures on Diseases of the Nervous System. Vol. I.
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Vol. 1878. (*Twentieth Year.*)

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85. Atlas of Illustrations of Pathology. (Fasciculus II.)

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86. Hebra on Diseases of the Skin. Vol. V.
87. Lexicon of Medical Terms. (Third Part.)
88. Koch's Researches on Wound Infection.
89. Lexicon of Medical Terms. (Fourth Part.)
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91. Atlas of Illustrations of Pathology. (Fasciculus III.)

1881. (*Twenty-third Year.*)

92. Selections from the Works of Abraham Colles.
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1882. (*Twenty-fourth Year.*)

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IV.—The Officers of the Society shall be elected from the Members, and shall consist of a President, sixteen Vice-Presidents, a Treasurer, a Secretary, and a Council of thirty-two, in whom the power of framing Bye-laws and of directing the affairs of the Society shall be vested. Twelve of the Council shall be provincial residents.

V.—Five Members of the Council shall form a quorum.

VI.—The Officers of the Society shall be elected by ballot at the General Anniversary Meeting of the Society. Balloting lists of Officers proposed by the Council, with blank places for such alterations as any Member may wish to make, shall be laid on the Society's table for the use of Members.

VII.—The President, Vice-Presidents, and Council, shall be eligible for re-election, except that of the Vice-Presidents four, and of the Council eight, shall retire every year.

VIII.—The Council shall appoint local Honorary Secretaries wherever they shall see fit.

IX.—The business of the President shall be to preside at the Annual and Extraordinary Meetings of the Society; in his absence one of the Vice-Presidents, or the Treasurer, or any Member of the Council chosen by the Members present, shall take the Chair.

X.—The Treasurer, or some person appointed by him, shall receive all moneys due to the Society.

XI.—The money in the hands of the Treasurer, which shall not be immediately required for the uses of the Society, shall be vested in such speedily available securities as shall be approved by the Council.

XII.—The Council shall select the Works to be published by the Society, and shall make all arrangements, pecuniary or otherwise, in regard to their publication. In the event of any Member of the Council being appointed to edit any Work for the Society, for which he is to receive pecuniary remuneration, he shall immediately cease to be a Member of the Council, and shall not be eligible for re-election till after the publication of the Work.

XIII.—The Council shall lay before the Members at each Anniversary Meeting a Report of their proceedings during the past year, and also an account of the Receipts and Expenditure of the Society; and shall further cause to be printed and circulated among the Members an abstract of such Report and Accounts immediately after such Anniversary Meeting.

XIV.—The annual Accounts of the Receipts and Expenditure of the Society shall be audited by a Committee of three Members, selected at the preceding Anniversary Meeting from among the Members at large.

XV.—The Secretary shall have the management of the general Correspondence of the Society, and of such other business as may arise in carrying out its objects.

XVI.—The local Secretaries shall further the objects of the Society in their respective districts, and shall be in communication with the metropolitan Secretary.

XVII.—The Anniversary Meeting shall be held in the same town as, and at the time of, the Annual Meeting of the British Medical Association, notice of it having been given to all Members at least a week before the day fixed on.

XVIII.—The Members generally shall be invited and encouraged to propose Works, &c., and to make any suggestions to the Council they may think likely to be useful.

XIX.—The Works of the Society shall be printed for the Members only.

XX.—No alteration in the Laws of the Society shall be made, except at a General Meeting. Notice of the alteration to be proposed must also have been laid before the Council at least a month previously.

XXI.—The Council shall have power to call a General Meeting of the Members at any time, and shall also be required to do so within three weeks, upon receiving a requisition in writing to that effect from not less than twenty Members of the Society.

XXII.—All Special General Meetings of the Society shall be held at such place as the Council may appoint.

XXIII.—The Council shall meet at least once in two months, unless by special resolution to the contrary.

GENERAL INFORMATION.

The Subscription is One Guinea annually, to be paid IN ADVANCE. The best mode of sending money is by Cheque, Post-office or Postal Order, payable to Mr. H. K. LEWIS; or by Cheque to the order of the Treasurer, Dr. SEDGWICK SAUNDERS. It is requested that in future all communications in reference to the payment of Subscriptions, or the issue of Books, may be made to Mr. LEWIS, the Society's Agent, and not to the Secretaries.

IMPORTANT NOTICE TO NEW SUBSCRIBERS AND LOCAL SECRETARIES.—New Members who subscribe for the current year and not fewer than three past years at the same time, will be allowed to select volumes from the surplus stock to the value of one guinea without additional payment. The like privilege will be secured each year by any Local Secretary who has the subscriptions of all the members on his list (the number being not less than ten) paid before the end of March for the current year. Arrangements have been made by which new Members can obtain single Volumes, or sets of Volumes, from the Society's stock in hand. Some of the Volumes, of which a larger surplus exists than of others, can be purchased at fixed prices (for which see list). The Society's Agent is empowered to make special arrangements with new Members who may wish to obtain any of the past Volumes.

CARRIAGE, &c.—The Society's Works are supplied free of cost to any address in London, Edinburgh, or Dublin; but the expenses of Carriage to all other places must be borne by the members to whom they are sent. Members are requested to give detailed instructions respecting the mode

by which they wish their Volumes to be forwarded, and also to remember that the Society's responsibility ceases when the Book has been delivered according to the instructions given. Members residing in the British Isles wishing to receive their Works by post can do so by prepaying the sum of 2s. for the year for postage.

Binding Cases and Portfolios.—The Society's Agent is prepared to supply, at fixed prices, Cases for binding the Lexicon, and Portfolios for the reception of the Plates of Skin Diseases, and for the Pathological Atlas.

To prevent misapprehensions as regards the punctual issue of each year's series it seems desirable to reprint the following extract from the Report for the year 1882:—

"If the members would kindly understand that the Society's financial year is from January to December, its year of issue from June to June, and that its subscriptions are due in advance, the working of the Society would be much facilitated. From this point of view, the issue of volumes for each succeeding year has always in the past been punctually completed, and probably will be so in the future. The works promised are issued *for* the year specified, but are not all of them issued *in* it."

The Council will always be glad to receive suggestions from Members, particularly with regard to any recent foreign works which are thought suitable for publication by the Society (*vide* Law XVIII.). It is requested that such communications be forwarded to the Secretary in the first instance.

Hon. Secretary.

JONATHAN HUTCHINSON, Esq., F.R.S., 15, Cavendish Square, London, W.

Agent and Depôt for Books.

Mr. H. K. LEWIS, 136, Gower Street, London, W.C.

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